



# Food is Prevention The Case for Integrating Food and Nutrition Interventions into Healthcare

## Citation

Sarah Downer, Robert Greenwald, Emily Broad Leib, Kellen Wittkop, Kristen Hayashi, Marissa Leonce & Morgan Menchaca. 2015. Food is Prevention The Case for Integrating Food and Nutrition Interventions into Healthcare. Center for Health Law & Policy Innovation, Harvard Law School.

## Published version

<http://www.chlpi.org/wp-content/uploads/2013/12/Food-is-Prevention-Report-July-2015.pdf>

## Link

<http://nrs.harvard.edu/urn-3:HUL.InstRepos:32151895>

## Terms of use

This article was downloaded from Harvard University's DASH repository, and is made available under the terms and conditions applicable to Other Posted Material (LAA), as set forth at

<https://harvardwiki.atlassian.net/wiki/external/NGY5NDE4ZjgzNTc5NDQzMGIzZWZhMGFIOWI2M2EwYTg>

## Accessibility

<https://accessibility.huit.harvard.edu/digital-accessibility-policy>

## Share Your Story

The Harvard community has made this article openly available.  
Please share how this access benefits you. [Submit a story](#)

# Food is Prevention



The Case for Integrating Food  
and Nutrition Interventions  
into Healthcare



July 2015

# About the Authors

The Center for Health Law and Policy Innovation of Harvard Law School (CHLPI) advocates legal, regulatory, and policy reforms to improve the health of underserved populations, with a focus on the needs of low-income people living with chronic illnesses. CHLPI works with consumers, advocates, community-based organizations, health and social services professionals, food providers and producers, government officials, and others to expand access to high-quality healthcare and nutritious, affordable food; to reduce health disparities; to develop community advocacy capacity; and to promote more equitable and effective healthcare and food systems. CHLPI is a clinical teaching program of Harvard Law School and mentors students to become skilled, innovative, and thoughtful practitioners as well as leaders in health, public health, and food law and policy. CHLPI includes the Health Law and Policy Clinic (HLPC) and the Food Law and Policy Clinic (FLPC). The HLPC was established in 1989. The FLPC is the oldest food law clinical program in the United States, and was established in 2010 to address growing concern about the health, environmental, and economic consequences of the laws and policies that structure the U.S. food system.

Since 2013, CHLPI has been engaged in policy work aimed at increasing integration of food and nutrition interventions into healthcare for those living with HIV or other chronic health conditions. CHLPI previously released *Food is Medicine: Opportunities in Public and Private Healthcare for Supporting Nutritional Counseling and Medically-Tailored, Home-Delivered Meals*. This white paper continues the dialogue about this issue, with a focus on using food and nutrition interventions in preventive care.

We gratefully acknowledge the generous support and insight provided by the M·A·C AIDS Fund and members of the food and nutrition services community in making this paper possible. *Food is Prevention: The Case for Integrating Food and Nutrition Interventions into Healthcare* is written by Sarah Downer, Robert Greenwald, Emily Broad Leib, Kellen Wittkop, Kristen Hayashi, Marissa Leonce, and Morgan Menchaca.

*The Center for Health Law & Policy Innovation provides information and technical assistance on issues related to health reform, public health, and food law. This document should not be considered legal advice. For specific legal questions, consult with an attorney.*

## Food is an Integral Part of Chronic Disease Prevention

*“Let food be thy medicine and medicine be thy food.”  
- Hippocrates*

# Contents

<b>I. Introduction</b> .....	<b>1</b>
<b>II. The Effectiveness of Food and Nutrition Interventions</b> .....	<b>2</b>
A. The Relationship between Food and Health .....	2
B. What Are Food and Nutrition Interventions? .....	3
C. Food and Nutrition Interventions Can Help Prevent and Mitigate Chronic Illness .....	3
1. Diabetes .....	3
2. Cardiovascular Disease (CVD) .....	4
3. Cancer .....	4
4. HIV/AIDS .....	4
D. Food and Nutrition Interventions Can Lower Healthcare Costs .....	6
CASE STUDY: Food as Tertiary Prevention - Medically-Tailored Meals for People Living with HIV/AIDS and Other Chronic Illness .....	6
<b>III. Food Interventions that Aim to Prevent Chronic Illness or     Complications from Chronic Illness: Examples from the Field</b> .....	<b>7</b>
A. Provision of food with the goal of preventing the onset of complications related to chronic illness .....	8
1. Medically-Tailored Home-Delivered Meals .....	8
2. Medically-Tailored Food Bank/Food Pantry Programs .....	9
B. Providing subsidies and incentives for the purchase of healthy food .....	10
1. Food Prescription Programs .....	10
2. SNAP Incentive Programs .....	10
3. Public and Private Insurance Coverage of Healthy Grocery Shopping Incentive Programs .....	11
C. Provision of nutrition education about the impact of diet on specific health conditions .....	12
1. National Diabetes Prevention Program .....	12
2. Eat Smart, Move More, Weigh Less .....	12
<b>IV. Integrating Food and Nutrition Interventions into Healthcare     for Payers and Providers</b> .....	<b>13</b>
A. Integrating Food and Nutrition Interventions: Public Payers .....	13
B. Integrating Food and Nutrition Interventions: Medical Providers .....	15
C. Integrating Food and Nutrition Interventions: Private Insurers .....	16
<b>V. Implementing Broad Coverage of Food and Nutrition Interventions     in Healthcare: Next Steps</b> .....	<b>16</b>
<b>VI. Conclusion</b> .....	<b>18</b>

# I. Introduction

Chronic illness is taking its toll on the health of America. Half of all adults in the United States have one or more chronic illnesses.<sup>1</sup> The financial toll of chronic disease on the economy is staggering. In 2007, the Milken Institute attributed an estimated \$1.3 trillion to costs of chronic illness-related medical care and productivity loss, and projected that costs could reach \$4.2 trillion by 2023.<sup>2</sup> Overall, rates of chronic illness are expected to increase by 42% between 2007 and 2023.<sup>3</sup>

The CDC has identified four modifiable health risk behaviors that are largely responsible for chronic disease: 1) lack of physical activity; 2) poor nutrition; 3) tobacco use; and 4) excessive alcohol consumption.<sup>4</sup> This paper focuses on the problem of poor nutrition. Lack of a healthy diet and insufficient nutrition are linked to the development of chronic diseases including obesity, diabetes, cardiovascular disease, cancer, osteoporosis, and dental disease.<sup>5</sup> Moreover, dietary factors are linked to four of the ten leading causes of death in the United States: coronary heart disease, certain types of cancer, stroke, and type 2 diabetes.<sup>6</sup>

Food can and should be used as a medical intervention to prevent chronic illness or to mitigate the symptoms and complications that accompany the diagnosis of diet-related and other chronic diseases. Specifically, food and nutrition interventions that facilitate or encourage the consumption of foods that are appropriate for identified health conditions or disease risk factors should be fully integrated into healthcare. Many food programs in the United States, such as the Supplemental Nutrition Assistance Program (SNAP) and Meals on Wheels, are designed to address food insecurity and hunger at a broad level without any explicit link to achievement of health outcomes. While these programs are vital as part of an overarching effort to combat food insecurity, the focus of this paper is instead on more tailored food interventions that can be used in a healthcare context to assist individuals in achieving health-related goals. Food interventions should be a component of ameliorative healthcare for the acute and chronically ill or preventive healthcare for those who are at risk for diet-related health conditions.

Insurance providers can experience significant cost savings by including food interventions as a covered benefit for those who need them. Nutrition interventions support the health of insurers' beneficiary population, improving quality of life and health outcomes, averting onset of chronic illness, and alleviating illness symptoms. All payers, both public and private, should integrate food and nutrition services into preventive care. Payers can support these interventions either through service-based reimbursement or by including these interventions as components of care financed by capitated or bundled payments. Healthcare providers participating in new care models, such as Accountable Care Organizations (ACOs), can also incorporate these interventions into care delivery in order to meet quality metrics and reduce costs.

The cost of nutrition interventions is a fraction of the expense of hospital-related and other costs associated with treating patients with diet-related chronic illness. Research demonstrates the incredible potential of these interventions for improving health outcomes among eligible recipients. This paper explores the link between food and diet-related disease and discusses nutrition interventions that could be further integrated into delivery of healthcare to advance the goal of preventing or mitigating chronic diet-related disease. Specifically, Part II examines the role food plays in several prominent diet-related chronic illnesses. Part III will discuss examples of food and nutrition interventions currently underway across the United States. Part IV offers the following recommendations to payers and providers that seek to integrate food interventions into healthcare delivery in order to improve health outcomes and reduce costs:

1. States should include food and nutrition interventions in applications for Medicaid waivers or State Plan Amendments.
2. Medicare should expand coverage of medically-tailored meals to all beneficiaries who meet eligibility criteria.
3. Demonstration projects funded by the Center for Medicare and Medicaid Innovation (CMMI) should include food and nutrition interventions.

4. State Medicaid programs and Medicare should expand coverage of evidence-based lifestyle interventions, such as the National Diabetes Prevention Program (NDPP).
5. Accountable Care Organizations (ACOs) should include food and nutrition interventions in the services they provide to patients.
6. Hospitals should use Community Benefit resources to offer food and nutrition interventions to patients and, more broadly, to community members.
7. Private insurers should offer food and nutrition interventions as a covered benefit to Medicaid Managed Care and Medicare Advantage beneficiaries.
8. Private insurers should cover food and nutrition interventions for all beneficiaries living with or at risk for chronic diet-related illness.

Finally, Part V outlines immediate next steps that payers and providers can take to support and participate in ongoing national and local dialogues about food as preventive and ameliorative medicine.

## II. The Effectiveness of Food and Nutrition Interventions

### A. The Relationship between Food and Health

Food has a direct and substantial impact on our overall health. From individual nutrients (e.g. sodium, potassium, vitamins) to entire diets (e.g. Mediterranean, plant-based), research demonstrates that the nutritional content and quantity of the food we consume can significantly affect health outcomes, especially for those at risk for or suffering from diet-related chronic illness.<sup>7</sup> Such research increasingly highlights how nutrition affects the onset and symptoms of these diseases, several of which are recognized as grave threats to public health and mortality in the United States.

In the U.S., the incidence of diet-related chronic illness is on the rise.

- *Four of the top ten leading causes of death are chronic illnesses demonstrably linked to nutrition: heart disease, certain cancers, stroke, and diabetes.*<sup>8</sup>
- *Heart disease has been the number one cause of death in the U.S. for over a century.*<sup>9</sup>
- *In 2012, prediabetes affected 86 million Americans over age twenty; an increase of seven million from 2010. Twenty-nine million Americans had diabetes in 2012; an increase of more than 3 million since 2010.*<sup>10</sup>
- *Over one-third of adults and 17% of children are obese in the U.S.,<sup>11</sup> which is considered a serious risk factor for heart disease, stroke, type 2 diabetes, and some forms of cancer.*

So far, conventional medicine alone has been unable to quell the growing rates of diet-related diseases, prompting healthcare providers, payers, advocates, nonprofits, and other groups to search for new solutions. Recent studies point to the potential of food and nutrition interventions to ameliorate the incidence and symptoms of certain chronic illnesses, particularly within vulnerable populations that lack the access, knowledge, and/or financial means to maintain a healthy diet (see, e.g. Salas-Salvado et al., Tuomilehto et al., and studies detailed in the chart on page

5). These studies not only substantiate the effectiveness of food and nutrition interventions as preventive medicine but also highlight the immense potential for cost savings for payers, medical providers, and patients when such interventions are incorporated into healthcare.

## B. What Are Food and Nutrition Interventions?

Food and nutrition interventions seek to deter the onset and detrimental side effects of chronic disease by providing people with the food, financial resources, incentives, and/or education they need to consume a balanced, healthy diet. For the chronically ill, these interventions aim to shift dietary patterns that previously contributed to declining health, using food and nutrition to address specific risk factors for chronic illness or prevent complications of health conditions related to an already-diagnosed disease. This white paper divides these interventions into three broad categories, which are discussed in Part III:

1. Direct provision of food (directly providing medically-appropriate food to those who have or are at risk for chronic illness)
2. Food purchasing incentives (subsidizing or otherwise incentivizing the purchase of medically-appropriate foods for these individuals)
3. Lifestyle and nutrition education (structured programs that teach participants about the impact of diet on specific aspects of their health)

Food and nutrition interventions can be effective at primary, secondary, and tertiary stages of prevention. In the earliest stage, they can be used to prevent “disease risk factors,” such as obesity, which has been linked to the emergence of various chronic illnesses.<sup>12</sup> In secondary prevention, they can respond to early detection of conditions such as prediabetes.<sup>13</sup> Finally, they can form part of a disease management strategy in tertiary prevention to preempt complications for individuals already diagnosed with a chronic disease.<sup>14</sup> Food and nutrition interventions can be used effectively to respond to a variety of conditions that are associated with exacerbation of chronic disease, from undernutrition and severe food insecurity to overnutrition with unhealthy foods.

## C. Food and Nutrition Interventions Can Help Prevent and Mitigate Chronic Illness

### 1. Diabetes

Rates of diet-related chronic illness have skyrocketed in recent years, leaving medical providers and policymakers scrambling to find effective solutions. For example, about 25.8 million Americans were diagnosed with diabetes in 2010, a figure that jumped to more than 29 million just two years later.<sup>15</sup> Curbing this alarming upward trend in disease prevalence, as well as the serious complications that stem from the illness, largely depends on the maintenance of normal blood glucose levels in diabetics and high-risk individuals. In fact, a mere 1% decrease in glucose levels among diabetics can lead to a “21% decrease in death, a 14% decrease in heart attack, and a 37% decrease in heart disease risk.”<sup>16</sup> Small reductions in blood glucose levels have also been correlated with fewer hospital visits, translating to cost savings for insurers; a 1% reduction in blood glucose was estimated to decrease annual healthcare costs by between \$686 and \$950 per person per year.<sup>17</sup>

Food interventions can meet the particular dietary needs of diabetics and prediabetics, helping to normalize blood glucose levels and reducing the occurrence of diabetes-related complications. One randomized study focusing on medically-tailored meals (meals designed by a nutrition expert for specific health needs) found that consuming pre-packaged, nutritionally complete prepared meals led to a statistically significant reduction in blood glucose levels.<sup>18</sup>

Moreover, nutrition and lifestyle counseling for overweight individuals at risk for diabetes has been shown to reduce the risk of diabetes by 58%.<sup>19</sup> In another study, two groups that maintained Mediterranean diets, one supplemented with 1 liter per week of virgin olive oil and the other with 30 grams of nuts per day, saw a reduction in diabetes incidence of 52% when compared to the control group.<sup>20</sup>

## 2. Cardiovascular Disease (CVD)

Food and nutrition interventions have also shown promise in reducing the incidence of cardiovascular disease (CVD). Heart disease and stroke, both a product of CVD, accounted for 28.5% of all U.S. deaths in 2013.<sup>21</sup> While genetic and age-related risk factors cannot be changed, hypertension, high cholesterol, obesity, and diabetes constitute CVD risk factors that can be abated or even avoided through lifestyle changes, especially in diet and physical activity.<sup>22</sup> The World Health Organization (WHO) estimates that insufficient consumption of fruits and vegetables causes about 31% of coronary heart disease and 11% of strokes worldwide.<sup>23</sup>

Research suggests that food and nutrition interventions can be effective in reducing a variety of CVD risk factors.<sup>24</sup> In a trial of 7,447 individuals at high cardiovascular risk, two groups assigned to the Mediterranean diet (with nutrition classes and supplementary nuts and olive oil) had fewer occurrences of major cardiovascular events, such as strokes, compared to the control group.<sup>25</sup> Nutritionally-complete, prepackaged meals have also proven helpful in reducing cardiovascular risk factors and improving participants' weight, blood pressure, and carbohydrate metabolism, among other benefits.<sup>26</sup>

## 3. Cancer

Food and nutrition interventions can also aid in the prevention of certain types of cancer, including colorectal, endometrial, kidney, breast, and esophageal.<sup>27</sup> Obesity has been shown to increase the risk for all of these cancers, and malnutrition in general “is recognized as an important component of adverse outcomes, including increased morbidity and mortality and decreased quality of life” in those battling cancer.<sup>28</sup> Unfortunately, malnutrition is not uncommon among cancer patients; one study of 191 oncology patients found that nearly half (49%) were malnourished.<sup>29</sup>

Consequently, nutrition interventions aimed at decreasing obesity and facilitating proper nutrition may also reduce the incidence of these cancers. Increased intake of vegetables, particularly cruciferous vegetables, has been shown to reduce the risk of colorectal cancer.<sup>30</sup> For women with early stage breast cancer, those receiving nutrition counseling in addition to conventional treatment had a lower incidence of cancer relapse (9.8%) than the control group (12.4%).<sup>31</sup>

## 4. HIV/AIDS

Individuals living with HIV/AIDS often face serious health complications arising from their illness, including “tuberculosis, meningitis, cancer, neurological dysfunction, kidney disease,” and, increasingly, type 2 diabetes.<sup>32</sup> Many of these conditions are directly affected by nutritional intake. Malnutrition, undernutrition, and overnutrition with unhealthy foods create negative feedback loops that exacerbate the already compromised health status of HIV-positive individuals. By weakening immunologic response, these nutrition-related factors increase the likelihood of infection, impede the proper absorption of medication, accelerate HIV replication, and increase mortality rates.<sup>33</sup>

Adequate nutrition is a crucial facet of HIV/AIDS management due to its positive impact on body weight, immune system functionality, and medication effectiveness.<sup>34</sup> Many studies highlight the importance of diet in the absorption of medication, with Atovaquone (used to treat pneumonia<sup>35</sup>) being “up to three times more effective” and Glanciclovir (prescribed for eye infections<sup>36</sup>) “30% more bioavailable” when taken with a healthy diet.<sup>37</sup> Proper nutrition can also help individuals living with HIV/AIDS avoid developing common comorbid conditions like type 2 diabetes, which complicate effective treatment and management of the disease.<sup>38</sup> Food insecurity in people living with HIV/AIDS is associated with poor medical care outcomes, including an increase in emergency room visits.<sup>39</sup> It is also linked to being more likely to have detectable viral loads, which increases the risk of spreading the virus to others.<sup>40</sup>

# Food and Nutrition Intervention Case Studies

*Analyzing the effects of food and nutrition interventions on health outcomes using randomized control trials*

Subject Profile	Research Methods	Results	Source
418 nondiabetic subjects (age 55-80) with high CVD/diabetes risk	Intervention group 1 assigned to MedDiet supplemented with free extra virgin olive oil (1 liter/week). Intervention group 2 assigned to MedDiet supplemented with free nuts (30g/day). Control group given education on low-fat diet.	After a median follow-up of four years, diabetes incidence was 10.1% in MedDiet with olive oil group, 11.0% in MedDiet with nuts group, and 17.9% in the control group. Diabetes incidence was reduced by 52% when the two MedDiet groups were combined and compared to the control group.	(Salas-Salvadó et al., 2011)
522 overweight subjects with impaired glucose tolerance	Intervention group received specialized nutrition and lifestyle counseling aimed at reducing weight and fat intake. Control group not provided with counseling.	After four years, the incidence of diabetes was 11% in the intervention group and 23% in the control group. Overall, the risk of diabetes was reduced by 58% in the intervention group.	(Tuomilehto et al., 2001)
302 subjects with hypertension, dyslipidemia, or type 2 diabetes	Intervention group assigned to nutrient-fortified prepared meal plan. Control group assigned to a macronutrient equivalent usual-care diet.	Dietary interventions decreased cardiovascular risk in high-risk patients. Compared to the control group, participants with hypertension/dyslipidemia in the intervention group showed greater improvements in total and high-density lipoprotein, cholesterol levels, systolic blood pressure, and glucose levels. In participants with type 2 diabetes mellitus, there were greater improvements in glucose and glycosylated hemoglobin levels.	(Metz et al., 2000)
7,447 adult subjects with high CVD risk	Intervention group 1 assigned to a Mediterranean diet supplemented with free extra virgin olive oil (1 liter/week). Intervention group 2 assigned to a Mediterranean diet supplemented with free nuts (30g/day). Control group given small, non-food gifts.	After 4.8 years, intervention group 1 experienced 96 cardiovascular events, intervention group 2 experienced 83 events, and the control group experienced 109 events, leading researchers to conclude that a Mediterranean diet supplemented with olive oil or nuts may reduce the incidence of major cardiovascular events.	(Estruch et al., 2013)
560 adult subjects with hypertension, dyslipidemia, or diabetes	Intervention group assigned to Campbell's Center for Nutrition and Wellness plan including prepackaged breakfast, lunch, and dinner meals. Control group assigned to AHA diet, in which participants self-selected foods.	After 10 weeks, participants' blood pressure, lipid levels, carbohydrate metabolism, weight, and quality of life improved on both plans. However, the CCNW plan proved to be more effective at reducing CVD risk factors, resulting in greater clinical benefits, nutritional completeness, and compliance than the self-selected plan.	(McCaron et al., 1997)
2,437 women with early stage breast cancer	Intervention group received nutrition counseling by a registered dietician, low-fat eating plan, annual workshops, and monthly conference calls, in addition to conventional treatment. Control group only received conventional treatment.	After a median follow-up of 60 months, mean body weight was six pounds lighter in the intervention group than the control group. Breast cancer relapse events have been reported in 9.8% of women in the dietary group and 12.4% of women in the control group.	(Chlebowski et al., 2006)
48,835 postmenopausal women	Intervention group given dietary intervention characterized by routine nutrition and behavioral counseling. Control group not provided with counseling.	While the risk for ovarian cancer was similar for the first four years of the study, the risk in the latter four years was lower in the intervention group (0.38 cases per 1000 person-years) than in the control group (0.64 per 1000 person-years).	(Prentice et al., 2007)

This research speaks to the promise of using food and nutrition interventions to help individuals maintain or regain health.<sup>41</sup> For the hundreds of millions of Americans who suffer from one or more of these illnesses, systematically addressing food intake is a relatively low-cost way to increase effectiveness of prevention and treatment regimens.

## D. Food and Nutrition Interventions Can Lower Healthcare Costs

Rising rates of chronic illness have placed an immense financial burden on the healthcare system. In 2010, 86% of total healthcare spending in the U.S. was spent on individuals diagnosed with chronic medical issues.<sup>42</sup> Fortunately, preliminary research suggests that food and nutrition interventions can improve the health status of the chronically ill *and* reduce costs for patients and healthcare payers and providers alike. Costs for several diet-related diseases include but are not limited to:

- **Cancer:** Direct medical costs for cancer were estimated at \$88.7 billion in 2011 and are projected to reach at least \$158 billion by 2020.<sup>43</sup>
- **Cardiovascular Disease:** Total cost of CVD was estimated at over \$444 billion in 2010, making it the most costly disease in the U.S.<sup>44</sup>
- **Diabetes:** Total cost of diabetes was estimated at \$245 billion in 2012.<sup>45</sup> Diabetes-related hospitalizations cost over twice as much as a regular hospitalization – nearly \$23,500 per person per visit.<sup>46</sup>
- **HIV/AIDS:** The annual medical cost of early-stage HIV/AIDS care was about \$14,000 per patient in 2006. However, individuals with late-stage HIV/AIDS incurred annual healthcare costs of approximately \$37,000 per patient.<sup>47</sup>
- **Obesity:** Direct cost of obesity care was estimated at \$147 billion in 2008.<sup>48</sup> In 2006, obese individuals incurred medical costs that were \$1,429 higher than their normal-BMI counterparts.<sup>49</sup>

The Case Study below demonstrates the potential impact of food and nutrition interventions on HIV/AIDS and other costly diseases.

### CASE STUDY: Food as Tertiary Prevention - Medically-Tailored Meals for People Living with HIV/AIDS and Other Chronic Illness

Home-delivered, medically-tailored meal programs, like the one operated by the nonprofit MANNA (Metropolitan Area Neighborhood Nutrition Alliance) of Pennsylvania, can drastically reduce costs and improve health outcomes for individuals living with chronic illness.

#### MANNA Home-Delivered Meals Program

In a recent study, a test group of 65 MANNA clients living with severe chronic illness received three meals a day, seven days a week for 12 months along with nutrition counseling and support, while a similar group of Medicaid patients did not receive any MANNA services. Six months before participating in the study, the MANNA group spent a monthly average of \$50,000 per person on healthcare; six months into the study, the same group's healthcare expenditures were \$17,000 per person. Strikingly, the MANNA group not only had a 37% shorter length of stay in hospitals, but they were also 50% less likely to be hospitalized than the comparison group.<sup>50</sup> If hospitalized, they were more than 20% likelier than the comparison group to return home rather than transfer to another health facility.<sup>51</sup>

For HIV/AIDS patients participating in the study, the results were even more significant – their medical costs fell more than 80% within the first three months.<sup>52</sup> Moreover, the cost of care for HIV-positive MANNA clients was 55% lower than the cost for the comparison group, costing the managed care organization (MCO) an average of \$20,000 less per month.<sup>53</sup> See Figure 2 below:<sup>54</sup>

	MANNA Test Group	Comparison Group
<i>Mean monthly costs</i>	\$28,268	\$40,906
<i>Mean monthly costs (HIV/AIDS)</i>	\$16,765	\$37,287
<i>Mean monthly inpatient costs</i>	\$132,441	\$219,639
<i>Mean monthly number of inpatient visits</i>	0.2	0.4
<i>Mean monthly inpatient length of stay</i>	10.7	17.1
<i>Mean percentage of individuals with discharges to home</i>	93%	72%

Figure 2

Food and health are clearly related, and nutrition interventions are innovative preventive tools meriting further investment. The data point to significant benefits for insurers and providers who offer these services. Many food and nutrition interventions are currently underway across the United States. Some of these interventions are covered by either public or private insurers, but the majority are temporary pilot programs funded through discretionary funding or philanthropic dollars. To reap the long-term benefits of food and nutrition interventions in healthcare, successful pilots will need to be scaled up and fully integrated into healthcare for individuals at risk for or living with chronic diet-related illness.

### III. Food Interventions that Aim to Prevent Chronic Illness or Complications from Chronic Illness: Examples from the Field

There are a number of innovative ways that food has already been integrated into preventive healthcare. While some of the initiatives outlined below have been embraced in a limited way by public or private insurers, most are time-limited pilot projects funded through grants, private philanthropy, or discretionary government funding that depends on annual appropriations. Food and nutrition interventions should be more widely and routinely used in the healthcare context.

This section examines three categories of prevention-focused nutrition interventions:

- First, the provision of food to chronically ill or at-risk populations through direct transfer of medically-tailored meals or other medically-tailored food packages
- Second, programs and initiatives that incentivize the purchase of healthy foods such as fruits and vegetables, with a focus on how these programs are or can be linked with a healthcare setting
- Third, programs that focus on providing nutrition education to populations with specific health conditions such as prediabetes and obesity, administered with the explicit goal of preventing the onset or exacerbation of chronic disease

These examples illustrate how food can be incorporated into healthcare for individuals who have or are at risk for a chronic illness in order to improve health outcomes and lower healthcare costs.

## **A. Provision of Food with the Goal of Preventing the Onset of Complications Related to Chronic Illness**

The programs described below respond to the relationship between food and chronic disease by providing either full meals or food items that patients can prepare themselves that meet the dietary specifications recommended by their doctors or other medical providers. While there are many programs, such as Meals on Wheels, that deliver generic meals in order to prevent hunger, this section focuses on the provision of meals that are designed to meet specific health goals identified by a medical provider (medically-tailored meals). The food provided through these types of interventions is tailored to the recipient's individual health needs based on diagnosis or provider-identified health risk factors. This section describes (1) the provision of medically-tailored home-delivered meals, both as a response to an acute or chronic illness and as a preventive measure; and (2) the provision of select, medically-tailored food items from a food bank or pantry.

### **1. Medically-Tailored Home-Delivered Meals**

The provision of medically-tailored, home-delivered meals has been shown to improve health outcomes and reduce healthcare costs for people living with chronic illnesses. Medically-tailored meal services are available from a wide variety of nonprofit organizations, which mostly rely on philanthropy and disease-specific discretionary funding to fund their operations. For-profit private companies are also increasingly offering these services.

For example, MANNA (see Case Study on page 6), a Philadelphia-based nonprofit, delivers 65,000 meals each month to its clients with chronic and life-threatening illness.<sup>55</sup> Each client is given three meals a day, seven days a week, at a cost to the nonprofit of \$450 per month (approximately \$15 per day) per client.<sup>56</sup> MANNA's meals are designed by a dietitian to meet each client's individual health needs. Receiving MANNA's services has been shown to significantly lower overall healthcare costs among this high-needs, high-cost population, reduce frequency and length of hospitalizations, and increase the likelihood that patients are discharged from a hospital to their homes instead of to acute care facilities.<sup>57</sup> Compared to a control group of similarly situated patients enrolled in a managed care organization, patients receiving MANNA's meals had healthcare costs 55% lower – approximately \$13,000 less per month per patient.<sup>58</sup> Similar nonprofits around the country are in the process of completing research studies that demonstrate the impact of medically-appropriate, home-delivered meals on patients with certain diseases, including diabetes and asthma.<sup>59</sup>

Although the operations of these nonprofit meal providers are mostly funded by private donations and discretionary funds, some medically-tailored meal providers have won contracts with health insurers to provide these cost-saving services to their beneficiaries.<sup>60</sup> For example, insurers that administer Medicaid Managed Long-Term Care plans in New York have contracted with medically-tailored meal provider God's Love We Deliver to provide meals to plan enrollees.<sup>61</sup> OneCare, an insurer that provides care for individuals who are eligible for both Medicare and Medicaid in Massachusetts, contracts with the nonprofit Community Servings to provide medically-tailored meals to its beneficiaries.<sup>62</sup> Medicaid in Maryland reimburses meal provider Moveable Feast for delivering medically-tailored meals to beneficiaries who qualify for such services under a long-term care waiver program.<sup>63</sup> These partnerships between medically-tailored meal providers and insurers indicate increasing recognition of the crucial role these services play in maintaining and improving the health of high-needs populations.

While many of the people who receive these home-delivered meals are already diagnosed with chronic illness, the meals are instrumental in improving quality of life and preventing hospitalizations and other costly disease-related complications.

## 2. Medically-Tailored Food Bank/Food Pantry Programs

Partnerships between food banks and healthcare providers offer those at risk for or living with chronic illness an innovative combination of food and preventive care. These initiatives integrate the direct provision of food with medical care by facilitating access to the specific types of foods that doctors recommend for identified health conditions. Boston Medical Center’s (BMC) Preventive Food Pantry and Feeding America’s Diabetes Initiative are examples of two different models for leveraging food pantry services to improve patient health.

### a. Boston Medical Center’s (BMC) Preventive Food Pantry

Boston Medical Center’s (BMC) Preventive Food Pantry, opened in 2001, is one of the first initiatives in the country that brought together primary and specialty medical care with on-site medical food pantry services.<sup>64</sup> To access the hospital’s Preventive Food Pantry, a patient must be referred by her physician, who writes a prescription for supplemental foods according to the patient’s dietary needs. Most patients who visit the pantry have chronic diseases such as cancer, diabetes, or obesity.<sup>65</sup> Families may come to the pantry up to twice a month to receive 3-4 days’ worth of medically-tailored food, and each visit is recorded in the patient’s medical record.<sup>66</sup> Healthy cooking classes, which demonstrate how to cook meals that meet the patients’ doctor-recommended nutritional needs, are offered at the Pantry’s on-site Demonstration Kitchen.<sup>67</sup> To date, the Pantry’s food budget is funded entirely by philanthropic dollars, with the majority of food coming from the Greater Boston Food Bank.<sup>68</sup>

Hospitals that engage in this type of food intervention initiative can count these activities as part of the “community benefits” they are required to provide in order to maintain their nonprofit federal tax status (see p. 15 for more information).<sup>69</sup> Insurers could cover the provision of certain foods in order to support the establishment of medical food pantries at other hospitals or health centers, extending the reach of medical food pantry services to all of their beneficiaries who have a chronic diet-related disease or risk factors for chronic illness.

### b. Feeding America’s Diabetes Initiative

Feeding America, a nonprofit that serves more than 46 million Americans across 200 member food banks every year, recently completed a grant-funded pilot program (“Diabetes Initiative”) in collaboration with food banks in Ohio, Texas, and California. Program participants, who screened positive for diabetes, received a monthly Diabetes Wellness Food Box full of fresh produce and other foods medically tailored for diabetics.<sup>70</sup> The program also included nutrition and diabetes education, and food bank personnel strove to collaborate with clients’ local healthcare professionals.<sup>71</sup> Statistically significant improvements were observed in participants’ blood sugar control, medication adherence, challenges with medication affordability, level of diabetes distress, depressive symptoms, and fruit and vegetable consumption.<sup>72</sup> The food bank staff encouraged study participants to access regular medical care, creating a vital feedback loop with healthcare providers.

The ability to connect individuals with services that stabilize housing, maximize financial resources, and provide access to healthy food is often critical to enabling them to prevent or manage a serious health condition successfully. Insurers and providers can support the type of community-based intervention outlined above as part of a strategy to address disparities in one of the key social factors—access to food—that influence health. Food insecurity is linked to a 46 percent increased likelihood of becoming a “high-cost user” (defined as top 5 percent user) of healthcare.<sup>73</sup> Partnerships between insurers or providers and community-based food banks to design tailored interventions for high-needs beneficiaries and patients ensures that these individuals receive the vital health-promoting food they need, with an explicit connection between food and their healthcare.

## B. Providing Subsidies and Incentives for the Purchase of Healthy Food

Providing financial subsidies or other incentives for the purchase of healthy, provider-recommended foods, such as fruits and vegetables, can change consumption patterns and help individuals at risk for or living with chronic illness meet dietary goals. These interventions have been funded in a variety of ways. Philanthropic and public dollars support food prescription pilot programs. The most recent federal Farm Bill allocated \$100 million for the Food Insecurity Nutrition Incentive (FINI) program over the next five years to fund healthy-purchasing incentives for SNAP recipients.<sup>74</sup> In the private sector, insurance providers have also started incentive programs that encourage health plan enrollees to purchase healthy food. Incorporating successful pilot nutrition interventions into routine healthcare coverage for individuals living with or at risk for chronic disease could help these individuals achieve long-term change in consumption and purchasing patterns, resulting in improved health outcomes for plan enrollees and cost savings for payers and providers.

### 1. Food Prescription Programs

Food prescription programs integrate primary care, nutrition education, and food access with the ultimate goal of improving health outcomes among patients. Targeted at individuals at risk of chronic disease, physicians participating in these programs write prescriptions that patients redeem for certain foods either at a farmers market or other retail food vendor. In lieu of visiting an on-site medical food pantry that distributes specific foods, participants in food prescription programs travel to off-site food retailers to choose their own produce.

#### a. Wholesome Wave FVRx

Wholesome Wave, a Connecticut-based nonprofit, created the Fruit and Vegetable Prescription Program, or FVRx.<sup>75</sup> Operating in multiple states and the District of Columbia, FVRx is a partnership between healthcare providers and farmers markets to serve families at risk of chronic disease. Providers enroll overweight and obese children into the program and meet with each child, the child's family, and a nutritionist periodically over the course of 4-6 months. At these meetings, the doctor sets goals for healthy eating and distributes fruit and vegetable prescriptions that are redeemable at participating farmers markets. The prescriptions cover about one dollar of food per day for each family member.<sup>76</sup> Wholesome Wave's FVRx programs have been shown to decrease the Body Mass Index (BMI) in 38% of child participants and increase the overall consumption of fruits and vegetables for the majority of participants.<sup>77</sup>

#### b. Hospital-based Fruit and Vegetable Voucher Programs

Hospitals have been leaders in experimenting with healthy food voucher programs. For example, St. Elizabeth's Medical Center in Brighton, MA has a Farmers Market Voucher Program that distributes vouchers to select patients with type 1, type 2, or gestational diabetes, who are referred to the program through the Diabetes Center.<sup>78</sup> The vouchers are worth \$1 for each family member per day. The program includes consultations about nutrition, and participants agree to track health indicators and take surveys about patterns of food consumption.<sup>79</sup>

### 2. SNAP Incentive Programs

The SNAP program provides general food-purchasing support to approximately 46 million low-income individuals every year.<sup>80</sup> Healthy-purchasing incentive pilot programs are currently helping some SNAP recipients to extend the reach of their SNAP benefits to purchase fresh produce. The Food Insecurity and Nutrition Incentive program

distributed over \$31 million dollars in 2014 to organizations and state agencies for multi-year pilot projects that aimed to help SNAP users better afford fruits and vegetables by doubling the value of SNAP dollars used to purchase these foods.<sup>81</sup> While these pilot programs make incentives available to all SNAP users within a specific geographic location, there is significant potential for insurers or providers to partner with SNAP to expand the geographic reach of FINI funds or further increase the benefit for someone with a chronic illness or chronic illness risk factor. SNAP-based incentive programs have been funded by a mix of federal, state, and local governments, nonprofit organizations, and private insurance.

### **3. Public and Private Insurance Coverage of Healthy Grocery Shopping Incentive Programs**

Private and public health insurance providers have also begun to experiment with healthy food purchasing incentives. While a few insurers have launched pilot initiatives in this area, there is still a huge opportunity for other payers and providers in healthcare to close the gap in coverage for more individuals with chronic illness.

#### **a. Medicaid Incentives for Prevention of Chronic Diseases (“MIPCD”)**

Within the Medicaid Incentives for Prevention of Chronic Diseases (“MIPCD”) program, public insurance dollars have been used to subsidize healthy food purchasing. Administered by the Center for Medicare & Medicaid Innovation (CMMI), the MIPCD program gives grants to states to pilot five-year innovative healthcare models focused on prevention of chronic illness. Of the 11 states awarded MIPCD funds in 2011, the accepted plans for two states—Minnesota and Texas—included incentives to purchase healthy food.<sup>82</sup> Minnesota’s program provides prediabetic participants with vouchers to subsidize the purchase of food at farmers markets.<sup>83</sup> Texas’s program, which is available to patients with both a physical chronic health diagnosis and a behavioral diagnosis, gives each participant a flexible spending account that the participant may use to buy nutritional or medicinal foods that are part of an individually-tailored Wellness Action Plan.<sup>84</sup>

#### **b. Private Insurance Provider Incentives**

On the private insurance side, some pioneering insurers are encouraging the purchase of healthy groceries as part of their holistic prevention strategies.

For example, Humana has initiated a national effort to incentivize healthier purchases for its insurance beneficiaries. Since 2012, the insurance provider teamed up with Walmart to offer a discount of up to 10% on healthy foods for plan members.<sup>85</sup> Over a million Humana members are eligible to receive a 5-10% discount when they use their Vitality HealthyFood Shopping Cards to purchase “Great for You” foods at Walmart stores. “Great for You” foods include fresh, frozen, and canned produce, low-fat dairy, 100% whole grains, lean meats, and foods low in sugar, sodium, and unhealthy fats.<sup>86</sup>

New England insurance provider Harvard Pilgrim recently adopted NutriSavings, a healthy grocery shopping cash rewards program, which was officially made available in 2014 to some of Harvard Pilgrim’s customers in Connecticut, Massachusetts, Maine, and New Hampshire.<sup>87</sup> Participants get up to \$20 a month in cash rewards for buying healthy foods at participating grocery stores: \$10 a month for enrolling, and another \$10 for reaching a certain point score for purchasing healthy foods.<sup>88</sup> Foods get a point score based on nutrient density and absence of unhealthy sugars, fats, and sodium. Fruits and vegetables score at the top, while processed foods receive the lowest scores. Purchases are tracked through loyalty cards used at checkout.<sup>89</sup> Harvard Pilgrim launched a pilot for its employees in April of 2014, one third of whom chose to participate, and 65% of whom scored high enough for the cash reward.<sup>90</sup> MaineHealth also recently implemented NutriSavings for its employees.<sup>91</sup>

While the examples above are offered to all enrollees in eligible plans, insurers also have the option of targeting certain beneficiaries, including those with chronic illness or risk factors for chronic disease, for unique or enhanced incentive programs. This can limit the expense of incentive programs while ensuring that

interventions reach those individuals who have the most need for them.

## C. Provision of Nutrition Education about the Impact of Diet on Specific Health Conditions

Nutrition education is a preventive tool that empowers people to make decisions that will help prevent or delay the onset of chronic disease. The multi-week nutrition programs profiled below are specifically targeted at improving health outcomes and reducing the incidence of chronic disease. Many public and private insurance companies have chosen to pay for these programs for their beneficiaries who are identified by medical providers as needing lifestyle change education that includes a health-focused nutrition component. Other insurance providers can offer similar education programs in order to provide their enrollees with the tools to change behavior in order to prevent the onset of chronic illness or effectively deal with complications arising from such illnesses.

### 1. National Diabetes Prevention Program

The National Diabetes Prevention Program (National DPP), led by the Centers for Disease Control & Prevention (CDC) is an evidence-based lifestyle intervention that has been proven to delay or prevent the onset of type-2 diabetes in individuals with prediabetes.<sup>92</sup> The multi-week program focuses on education of participants and encourages them to reach weight loss and exercise goals. Launched in 2010, the National DPP is based on the lifestyle intervention used in the Diabetes Prevention Program clinical trial, a randomized controlled trial funded by the National Institutes of Health (NIH), which was found to reduce participants' risk of developing diabetes by 58%.<sup>93</sup> Participation in the National DPP constitutes a one-time investment of approximately \$450 per person.<sup>94</sup> The average per-patient healthcare expenditures for people diagnosed with diabetes are estimated at \$13,700 annually, of which \$7,900 is attributed to diabetes.<sup>95</sup> The National DPP therefore represents an extremely cost-effective way to reduce diabetes-related costs for insurance providers.

Some private insurance companies cover participation in the National DPP, including the United Health Group, but many still do not. As of 2014, Montana is the only state that covers participation in the program through Medicaid, and four states currently offer the National DPP as a benefit to state employees who qualify based on a diagnosis of prediabetes.<sup>96</sup> Medicare does not currently cover the National DPP, although a demonstration project launched in 2013 is piloting the program for Medicare beneficiaries at 17 sites across the country.<sup>97</sup> The pilot, which includes 10,000 participants, is expected to save Medicare \$4.2 million over three years.<sup>98</sup> Proposed legislation introduced in the House and Senate in 2015 aims to institutionalize coverage of the National DPP for all Medicare beneficiaries.<sup>99</sup> Analyses of previous and substantively similar legislation estimate that such coverage would reduce federal Medicare spending by \$1.3 billion over 10 years.<sup>100</sup>

### 2. Eat Smart, Move More, Weigh Less

Eat Smart, Move More, Weigh Less (ESMMWL) is an online lifestyle intervention program that offers 15 weekly lessons on mindful eating and exercise.<sup>101</sup> Originally developed for North Carolina state employees enrolled in the North Carolina State Health Plan, for whom the program is nearly fully subsidized, ESMMWL is now available to independent registrants for \$225.<sup>102</sup> Seventy percent of participants who completed the program maintained or lost even more weight six months after their classes ended, 15.8% brought their blood pressure within normal range, and 7.3% reversed or decreased the severity of their hypertension.<sup>103</sup> Furthermore, ESMMWL reports that the doctors of many participants have reduced or eliminated medication for conditions such as high blood pressure, diabetes, high cholesterol, and reflux/GERD, reflecting a reduction in the symptoms associated with these conditions.<sup>104</sup> For every \$1 spent on ESMMWL, the program evaluators estimate that \$2.75 can be saved in medical care and lost productivity costs.<sup>105</sup>

# IV. Integrating Food and Nutrition Interventions into Healthcare for Payers and Providers

Expanding covered health insurance benefits to include preventive services that directly integrate medically-tailored meals, subsidization of healthy food, and/or chronic-disease-focused nutrition education has the potential to yield both improved health outcomes and short and long-term financial benefits. Implementation of these interventions requires a low up-front cost while effectively combatting the symptoms of chronic illness and working to prevent disease in those at risk. Public and private health insurance providers, state and local government, and public-private partnerships all stand to benefit from investing in these types of preventive health interventions.

More than 75% of healthcare costs are due to chronic conditions, most of which are preventable and diet-related, including heart disease, obesity, and diabetes.<sup>106</sup> Using food as a medical and preventive tool for chronic illness holds great promise for addressing such health conditions and the costs associated with them. Public and private health insurers and providers have the ability to adopt food and nutrition interventions quickly and easily, as there are a number of opportunities to use already-existing and new funding streams to support these services.

## A. Integrating Food and Nutrition Interventions: Public Payers

The evidence linking food and nutrition interventions to improved health outcomes for individuals living with or at risk for chronic diet-related illness is strong. Forward-thinking public payers should offer a combination of these services to their beneficiaries, targeting specific interventions at the populations that will most benefit from receiving them. Food and nutrition interventions should become covered benefits in mainstream Medicaid and Medicare. Both Medicaid and Medicare should work to widely incorporate these interventions through administrative means whenever possible, and Congress and state legislators should pass legislation that mandates or explicitly allows inclusion of these interventions in public health insurance programs. While the inclusion and implementation of food and nutrition interventions as core covered benefits in these programs might take time, immediate options for promoting food and nutrition interventions in public health insurance include the following:

### ***1. States should include food and nutrition interventions in applications for Medicaid waivers or State Plan Amendments.***

Medicaid is a federal and state-funded health coverage program that provides health insurance to certain categories of low-income individuals. The federal government requires all states that participate in the Medicaid program to provide coverage for all children, pregnant women, parents, elderly, and disabled individuals who meet certain income criteria.<sup>107</sup> The Affordable Care Act made it possible for states to choose to expand their Medicaid programs to cover all adults up to 138% of the Federal Poverty Level (FPL). As of March 2015, 28 states and the District of Columbia have elected to expand Medicaid coverage for residents.<sup>108</sup>

For most beneficiaries, Medicaid does not provide coverage for the type of food and nutrition interventions profiled in this paper. However, states can alter or enhance the coverage Medicaid provides to certain populations by applying for a waiver (such as the Home and Community-Based Services (HCBS) 1915(c) Waiver<sup>109</sup> or the Section 1115 Demonstration Waiver<sup>110</sup>) or a State Plan Amendment (SPA).<sup>111</sup> Waivers and SPAs tend to target populations with high health needs. HCBS Waivers and HCBS SPAs, for example, are geared toward individuals who need support services to avoid being institutionalized in an acute care facility, such as a nursing home.<sup>112</sup> 1115 Waivers can be used to design a model of care or package of services for a wider variety of populations, including those who have one or more specific chronic illnesses.<sup>113</sup>

States should include food and nutrition interventions as proposed benefits in applications for these waivers and SPAs. These relatively low-cost interventions have been shown to have a significant impact on individuals with high

levels of health needs (see Case Study on page 6 and pp. 2-7 for more information). More intensive interventions, such as provision of medically-tailored meals and groceries, are well-suited for inclusion in HCBS Waivers and SPAs. The 1115 Demonstration Waiver is a vehicle for integration of all levels of food and nutrition interventions, from provision of meals to subsidization of healthy food to coverage of nutrition education programs, into benefits aimed at individuals living with specific diet-related chronic diseases.

## ***2. Medicare should expand coverage of medically-tailored meals to all beneficiaries who meet eligibility criteria.***

In general, Medicare does not cover medically-tailored meals under Parts A and B, which means that most Medicare beneficiaries—approximately 44 million individuals—do not receive such coverage.<sup>114</sup> However, within Medicare, medically-tailored meals can be a covered benefit in some limited circumstances for certain beneficiaries.

Under Medicare Part C (Medicare Advantage), private insurers who provide Medicare Advantage plans can *choose* to offer meals to beneficiaries who meet eligibility criteria. Beneficiaries of Medicare Advantage plans may receive meals if the service is “1) needed due to an illness; 2) consistent with established medical treatment of the illness; and 3) offered for a short duration”<sup>115</sup> and if one of two circumstances apply: first, meals may be offered to individuals immediately following surgery or an inpatient hospital stay; and second, meals may be covered for individuals with chronic conditions like hypertension or diabetes if they are part of a program intended to “transition the enrollee to lifestyle modifications.”<sup>116</sup>

Meals can also be covered for beneficiaries enrolled in Medicare Special Needs Plans, a specialized kind of Medicare Advantage plan, in which certain categories of beneficiaries can enroll, including 1) institutionalized beneficiaries, 2) dual eligible beneficiaries (patients eligible for both Medicare and Medicaid), and/or 3) beneficiaries who have one of a list of severe or disabling chronic conditions, including diabetes.<sup>117</sup> However, Medicare Special Needs Plans are not available in all areas.

Limiting meals as a possible covered benefit only to Medicare Special Needs Plans and Medicare Part C beneficiaries means that the majority of Medicare beneficiaries who meet the criteria for meal eligibility outlined in Medicare Part C do not have access to this service. Even among Medicare Advantage plans, plan administrators are not required to cover meals, meaning those who have access to Medicare Advantage plans may not have meals as a covered benefit.<sup>118</sup>

Medically-tailored meals should be a covered benefit for *all* Medicare beneficiaries who meet the criteria established under Medicare Part C. Individuals eligible for Medicare are more likely to have one or more chronic diet-related illnesses based on age-related risk factors. The Centers for Medicare & Medicaid Services (CMS) can make this administrative change or congress can pass federal legislation that mandates this benefit for those who need it. The provision of medically tailored meals has significant potential to assist in maintaining health and decreasing the rate of complications these individuals might experience.

## ***3. Demonstration projects funded by the Center for Medicare and Medicaid Innovation (CMMI) should include food and nutrition interventions.***

The ACA established CMMI in 2010 to promote “broad payment and practice reform in primary care.”<sup>119</sup> Since then, CMMI has partnered with states and providers nationwide to create new programs designed to combat a wide array of diseases, including diabetes and cardiovascular disease. Some of these initiatives, like the Medicaid Incentives for the Prevention of Chronic Disease program funded by CMMI, have included food and nutrition interventions (see p. 11 for more details). However, given the promise of food and nutrition interventions for addressing chronic disease and chronic disease risk factors, CMMI should ensure that all successful applications for funding include food and nutrition services as a component of the demonstration project whenever possible. Interventions that prove successful at meeting the Triple Aim of improved individual and population health and reduced costs should be replicated and scaled up in both Medicaid and Medicare.

#### ***4. State Medicaid programs and Medicare should expand coverage of evidence-based lifestyle interventions, such as the National Diabetes Prevention Program (NDPP).***

In lieu of using a state waiver to cover a lifestyle intervention program such as the NDPP (see p. 12 for more information), states can choose to expand Medicaid coverage to include participation in these interventions for eligible individuals through the appropriate legislative or administrative levers, depending on the state.

Medicare, the federal health insurance program that covers most people over the age of 65 as well as disabled individuals regardless of age,<sup>120</sup> should also expand coverage of lifestyle intervention programs for individuals living with or at risk for a chronic diet-related illness. Covering the NDPP for eligible Medicare individuals, for example, has the potential to avoid millions of cases of diabetes and save the Medicare program \$1.3 billion over ten years.<sup>121</sup>

## **B. Integrating Food and Nutrition Interventions: Medical Providers**

#### ***5. Accountable Care Organizations (ACOs) should include food and nutrition interventions in the services they provide to patients.***

An ACO is a partnership of health care providers whose reimbursement is partially contingent on meeting quality metrics and reducing care costs.<sup>122</sup> A group of providers, including but not limited to hospitals, managed care organizations, surgery centers, and physician practices, may apply to become an ACO. The ACO payment structure encourages providers to coordinate services and to pay close attention to patients' health outside of appointments. Generally, an ACO receives a per-member per-month capitated payment to care for patients and can use this payment for any array of services that best supports the patient's health while being cost-effective. ACOs can improve their ability to meet target metrics for both health outcomes and cost by including food and nutrition interventions in the services offered to patients living with or at risk for chronic diet-related illness.

#### ***6. Hospitals should use Community Benefit resources to offer food and nutrition interventions to patients and, more broadly, to community members.***

Approximately 51 percent of America's hospitals are non-profit organizations.<sup>123</sup> As non-profits, these hospitals are afforded tax exemptions from federal and state governments if they meet certain requirements. They are expected to "promot[e] the health of a class of persons...broad enough to benefit the community," or, in other words, to provide a certain level of "community benefit" in order to retain their favorable tax status.<sup>124</sup> Hospitals can include a variety of services they provide under this umbrella definition, including efforts to address the need "to ensure adequate nutrition."<sup>125</sup> Offering food and nutrition interventions to community members living with or at risk for chronic diet-related illness can help hospitals to meet their tax obligations and improve the overall health profile of the hospital's community.

The Affordable Care Act requires hospitals to engage in certain processes to identify how they will meet their Community Benefit requirement. They must complete a triennial Community Health Needs Assessment (CHNA) and a subsequent Community Health Improvement Plan (CHIP), which must be publicly filed with the hospital's tax forms.<sup>126</sup> To ensure that they properly identify food access and nutrition as a community need and effectively utilize community and hospital resources to address it, hospitals should ensure that they are including input from community-based organizations and others with expertise or knowledge of community food insecurity in developing both the CHNA and the CHIP. Community Benefit dollars and/or other resources used by a hospital to meet the Community Benefit requirement can support any of the food and nutrition interventions profiled in this paper, from

provision of meals to offering chronic disease-focused nutrition education to individuals with certain risk factors for chronic illness.

## **C. Integrating Food and Nutrition Interventions: Private Insurers**

### ***7. Private insurers should offer food and nutrition interventions as a covered benefit to Medicaid Managed Care and Medicare Advantage beneficiaries.***

As with public health insurance programs, private insurers have a powerful incentive to adopt care innovations that reduce the cost of care for their neediest beneficiaries. When private insurers have managed care contracts with Medicaid and Medicare, they generally receive capitated payments to provide coverage for these individuals and bear the risk of overspending on those whose care needs exceed per-member or per-population payments. Private insurers should choose to add coverage of food and nutrition interventions for public insurance beneficiaries in order to improve health outcomes and reduce total cost of care. Coverage of these services can also attract beneficiaries choosing between Medicaid Managed Care companies or Medicare Advantage providers, increasing market share for insurers.

### ***8. Private insurers should cover food and nutrition interventions for all beneficiaries living with or at risk for chronic diet-related illness.***

With the implementation of the Affordable Care Act, private insurers that sell health plans in the state marketplaces will see an increase in individuals of all health profiles purchasing coverage. Ensuring that plans cover holistic preventive care for these beneficiaries, whether they have no known health conditions or are already diagnosed with one or more chronic illnesses, will be critical to helping them maintain good health and/or avoid complications from diet-related chronic disease. Private insurers have the flexibility to design benefits packages that provide coverage of different food and nutrition interventions upon identification of specific health conditions or risk factors. They can easily experiment with design of interventions and internally track outcomes and costs to demonstrate the value of such coverage. Particularly where there are long-term benefits associated with integration of food and nutrition interventions, private insurers can advocate for industry-wide coverage of these interventions so that all insurers experience the downstream savings associated with providing comprehensive preventive care to beneficiaries who change insurers over their lifetimes.

## **V. Implementing Broad Coverage of Food and Nutrition Interventions in Healthcare: Next Steps**

While there is ample evidence that food and nutrition interventions should be fully integrated into routine healthcare, payers and providers have largely been absent from comprehensive conversations about incorporating them in ameliorative and preventive medicine. Payers and providers should support and/or join national, regional, or state Task Forces/Working Groups that critically examine these interventions and strive to integrate effective interventions in mainstream healthcare.

To facilitate familiarity with the latest innovations and research, payers and providers should be strong partners in national, regional, and state food as medicine and prevention coalitions. Food and nutrition interventions are, across the board, a relatively low-cost way to prevent and manage chronic diet-related disease. Effective and widespread use of these types of interventions is only possible when payers and providers are active partners in shaping their design and experimenting with their implementation. Advancing the concept of these interventions as part of holistic health

care is a conversation in which payers and providers should play a leading role. As part of a Task Force or Working Group, payers and providers should explore implementation of the recommendations in the previous section and work to address any gaps in available data on efficacy of food and nutrition interventions.

Payers and providers can prepare to adopt and scale up the interventions and pilot programs described in this paper by:

### ***1. Assessing the need for food and nutrition services by noting the number of patients and beneficiaries who have a chronic diet-related disease or one or more risk factors for a chronic diet-related illness.***

Effective use of food and nutrition interventions to improve health outcomes and reduce costs begins with an assessment of the need for the types of services and programs examined in this paper. Hospitals and payers with a higher proportion of senior patients and beneficiaries (a population more likely to have a chronic illness or multiple chronic conditions), for example, may want to pilot and evaluate more intensive food and nutrition interventions, such as provision of medically-tailored meals. Due to the requirements of the Affordable Care Act, many insurers will be covering new populations of beneficiaries with serious diet-related chronic conditions and many providers may experience an influx of patients with these conditions (or risk factors for these conditions) who were unable to afford or access healthcare in the past. Tracking the needs of this new beneficiary/patient population can help insurers and providers design effective food and nutrition intervention programs that yield the maximum health benefit for resources invested.

### ***2. Forming data-sharing partnerships with nonprofits and other entities providing food and nutrition services to patients and beneficiaries to evaluate the cost and health impact of these interventions.***

Across the country, nonprofits and state/municipal agencies are already providing food and nutrition services to patients and beneficiaries, many relying on philanthropic or public dollars. This represents an opportunity for payers and providers to share and/or privately track claims and cost data in order to evaluate the cost and health impact of these services. Sharing this type of data with an entity that administers a food and nutrition intervention can yield of a number of benefits, including:

- Providing feedback to the nonprofit/agency about the efficacy of its program that will help it streamline services and better leverage public/private dollars.
- Proving to the payer/provider and the nonprofit/agency that the intervention is or is not cost-effective for certain subsets of the patient/beneficiary population.
- Giving the payer/provider valuable insight into how to most effectively invest any available future resources in food and nutrition interventions in order to see the largest possible impact.
- Giving the payer/provider information about the benefits of these types of services that can be used for marketing, capital, and charitable campaigns.

### ***3. Giving clear directives to organizations, agencies, and entities that provide these services about how to demonstrate intervention efficacy.***

From payers and providers to entrepreneurs, community-based organizations, and advocacy groups, everyone is striving to innovate in order to meet the Triple Aim of improving the patient experience, improving population health, and reducing cost.<sup>127</sup> Payers and providers can help innovators by developing clear parameters for demonstrating

the efficacy of a particular intervention and communicating these parameters to their potential partners. The organizations and entities that provide food and nutrition interventions can—and are often eager to—evolve and grow their services to meet the needs of a particular payer or provider when those needs are clearly articulated. They can actively seek partners to collect the type of data payers and providers want to see in order to show that a given intervention is going to work for their patients/beneficiaries.

## VI. Conclusion

Food interventions are an effective way to combat chronic illness, not only through ameliorative care for those who currently suffer from diet-related illness but also as a preventive measure for those who are at risk. Providing medically-tailored food, incentivizing the purchase of healthy foods, and providing focused nutrition education to people at high risk of developing chronic disease are all cost-effective ways to prevent chronic illness or mitigate its impact upon diagnosis. Improved health outcomes for patients/insurance beneficiaries will translate to decreased health costs for both public and private insurers.

Public and private insurers, hospitals, and networks of care providers can act now to implement the recommendations outlined in Part IV of this paper by transforming internal practices or advocating for legislative change. They can also engage in the Next Steps described in Part V to continue to build the evidence base for the different types of interventions that might work best for their particular group of beneficiaries or patients.

The nonprofit and other organizations profiled in this paper have a long history of utilizing food and nutrition services to meet the Triple Aim of improving patient experience and population health while reducing cost. Their work demonstrates that the provision of these interventions is effective at helping people living with or at risk for chronic diet-related disease stay healthy and/or avoid complications from illness. These organizations are an excellent resource for payers and providers seeking to introduce or scale up provision of these services for broader populations of beneficiaries and patients.

Both payers and providers stand to benefit from adopting and helping to evaluate the efficacy of food and nutrition services, and both should play leading roles in advancing the concept that food is both medicine and prevention at the national level. Integrating food and nutrition interventions into healthcare delivery for high-risk or chronically ill beneficiaries will reduce costs for public and private payers and providers and, more importantly, will help reduce the overall burden of chronic diet-related disease in the United States.

# Endnotes

- <sup>1</sup> CTRS. FOR DISEASE CONTROL AND PREVENTION, *Chronic Disease Prevention and Health Promotion: Chronic Disease Overview*, available at <http://www.cdc.gov/chronicdisease/overview/index.htm> (last viewed Jun. 5, 2013).
- <sup>2</sup> Ross DeVol et al., *An Unhealthy America: The Economic Burden of Chronic Disease – Charting a New Course to Save Lives and Increase Productivity and Economic Growth*, MILKEN INSTITUTE (2007), available at [http://assets1b.milkeninstitute.org/assets/Publication/ResearchReport/PDF/chronic\\_disease\\_report.pdf](http://assets1b.milkeninstitute.org/assets/Publication/ResearchReport/PDF/chronic_disease_report.pdf).
- <sup>3</sup> Ross DeVol et al., *An Unhealthy America: The Economic Burden of Chronic Disease – Charting a New Course to Save Lives and Increase Productivity and Economic Growth*, Milken Institute (2007), available at [http://assets1b.milkeninstitute.org/assets/Publication/ResearchReport/PDF/chronic\\_disease\\_report.pdf](http://assets1b.milkeninstitute.org/assets/Publication/ResearchReport/PDF/chronic_disease_report.pdf). (citing cancer, diabetes, hypertension, stroke, heart disease, mental disorders and pulmonary conditions as seven diet-related chronic illnesses used to calculate the figures).
- <sup>4</sup> CTRS. FOR DISEASE CONTROL AND PREVENTION, *Chronic disease...the public health challenge of the 21<sup>st</sup> century* (2009), available at <http://www.cdc.gov/chronicdisease/pdf/2009-power-of-prevention.pdf>.
- <sup>5</sup> WORLD HEALTH ORGANIZATION, *Diet, Nutrition and the Prevention of Chronic Diseases 4* (2003).
- <sup>6</sup> CTRS. FOR DISEASE CONTROL AND PREVENTION, *Healthy People 2000: National Health Promotion and Disease Prevention Objectives* (Oct. 2001), available at <http://www.cdc.gov/nchs/data/hp2000/hp2k01.pdf>; Sherry L. Murphy, *Deaths: Preliminary Data for 2010*, 60 NATIONAL VITAL STATISTICS REPORTS 1 (2012), available at [http://www.cdc.gov/nchs/data/nvsr/nvsr60/nvsr60\\_04.pdf](http://www.cdc.gov/nchs/data/nvsr/nvsr60/nvsr60_04.pdf).
- <sup>7</sup> Véronique L. Roger et al., *Heart Disease and Stroke Statistics 2012 Update: A Report From the American Heart Association* (2012), available at <http://circ.ahajournals.org>; Ramón Estruch et al., *Primary Prevention of Cardiovascular Disease with a Mediterranean Diet*, 368 N. ENGL. J. MED. 4 (Apr. 2013).
- <sup>8</sup> DIETARY GUIDELINES ADVISORY COMMITTEE, *Report of the Dietary Guidelines Advisory Committee on the Dietary Guidelines for Americans, 2010*, (May 2010), available at [http://www.cnpp.usda.gov/sites/default/files/dietary\\_guidelines\\_for\\_americans/2010DGACReport-camera-ready-Jan11-11.pdf](http://www.cnpp.usda.gov/sites/default/files/dietary_guidelines_for_americans/2010DGACReport-camera-ready-Jan11-11.pdf).
- <sup>9</sup> Véronique L. Roger et al., *Heart disease and stroke statistics–2012 update: A report from the American Heart Association*, AMERICAN HEART ASS'N e2- e220 (2012), available at <http://circ.ahajournals.org/content/125/1/e2.extract>.
- <sup>10</sup> AMERICAN DIABETES ASS'N, *Statistics About Diabetes* (June 10, 2014), <http://www.diabetes.org/diabetes-basics/statistics/>.
- <sup>11</sup> CTRS. FOR DISEASE CONTROL AND PREVENTION, *Overweight and Obesity Facts*, <http://www.cdc.gov/obesity/data/facts.html> (last visited Apr. 23, 2015).
- <sup>12</sup> Academy of Nutrition and Dietetics, *Position of the Academy of Nutrition and Dietetics: The Role of Nutrition in Health Promotion and Chronic Disease Prevention*, 113 JOURNAL OF THE ACADEMY OF NUTRITION AND DIETETICS 972, 974 (2013).
- <sup>13</sup> *Id.*
- <sup>14</sup> *Id.*
- <sup>15</sup> AMERICAN DIABETES ASS'N, *Statistics About Diabetes* (June 10, 2014), <http://www.diabetes.org/diabetes-basics/statistics/>.
- <sup>16</sup> *Food as Medicine: Medically Tailored, Home-Delivered Meals Can Improve Health Outcomes for People with Critical and Chronic Disease*, COMMUNITY SERVINGS 25 (Feb. 2013), available at <http://servings.org/assets/documents/Community%20Servings%20Food%20as%20Medicine%202.2013.pdf> (citing Irene M. Stratton et al., *Association of Glycaemia with Macrovascular and Micorvascular complication of type 2 diabetes (UKPDS 35):prospective observational study*, BRITISH MEDICAL JOURNAL 405-12 (2000)).
- <sup>17</sup> Edward H. Wagner et al., *Effect of Improved Glycemic Control on Healthcare Costs and Utilization*, 285 J. AM. MED. ASS'N 182 (2001).
- <sup>18</sup> Jill A. Metz et al., *A Randomized Trial of Improved Weight Loss with a Prepared Meal Plan in Overweight and Obese Patients: Impact on Cardiovascular Risk Reduction*, 160 ARCH INTERN MED 2150 (2000), available at <http://archinte.jamanetwork.com/article.aspx?articleid=485403#RESULTS>.
- <sup>19</sup> Joyce G. Pastors, et al., *The Evidence for the Effectiveness of Medical Nutrition Therapy in Diabetes Management*, 25 DIABETES CARE (March 2002) (citing *Prevention of type 2 diabetes mellitus by changes in lifestyle among subjects with impaired glucose tolerance*, 344 N. ENGL. J. MED. 1343–50 (2001)).
- <sup>20</sup> Jordi Salas-Salvadó et al., *Reduction in the Incidence of Type 2 Diabetes With the Mediterranean Diet*, 34 DIABETES CARE 14–19 (2011).
- <sup>21</sup> *Deaths, Percent of Total Deaths, and Death Rates for the 15 Leading Causes of Death: United States and Each State, 2013*, National Vital Statistics System, CTRS. FOR DISEASE CONTROL AND PREVENTION (2013), available at [http://www.cdc.gov/nchs/data/dvs/LCWK9\\_2013.pdf](http://www.cdc.gov/nchs/data/dvs/LCWK9_2013.pdf).
- <sup>22</sup> George A. Mensah and David W. Brown, *An Overview Of Cardiovascular Disease Burden In The United States*, 26 HEALTH AFFAIRS 38-48 (2007).
- <sup>23</sup> *The World Health Report 2002, Reducing risks, promoting healthy life*, WORLD HEALTH ORGANIZATION (Geneva, 2002), available at <http://www.who.int/whr/2002/en/>.

- <sup>24</sup> *Position of the Academy of Nutrition and Dietetics: The Role of Nutrition in Health Promotion and Chronic Disease Prevention*, 113 JOURNAL OF THE ACADEMY OF NUTRITION AND DIETETICS (July 2013).
- <sup>25</sup> Ramón Estruch et al., *Primary Prevention of Cardiovascular Disease with a Mediterranean Diet*, 368 N. Engl. J. Med. 4 (Apr. 2013).
- <sup>26</sup> David McCaron et al., *Nutritional Management of Cardiovascular Risk Factors: A Randomized Clinical Trial*, 157 JAMA INTERNAL MEDICINE (1997).
- <sup>27</sup> Timothy Key et al., *Diet, Nutrition, and the Prevention of Cancer*, 7 PUBLIC HEALTH NUTRITION 187–200 (2004).
- <sup>28</sup> Daniel Cohn & David Waters, *Food as Medicine: Medically Tailored, Home-Delivered Meals Can Improve Health Outcomes for People with Critical and Chronic Disease*, COMMUNITY SERVINGS 21 (Feb. 2013).
- <sup>29</sup> *Id.*
- <sup>30</sup> James R. Marshall, *Prevention of Colorectal Cancer: Diet, Chemoprevention, and Lifestyle*, GASTROENTEROLOGY CLINICS OF NORTH AMERICA, 37:1 76 (2008).
- <sup>31</sup> Rowan Chlebowski et al., *Dietary Fat Reduction and Breast Cancer Outcome: Interim Efficacy Results From the Women's Intervention Nutrition Study*, 98 JOURNAL OF THE NATIONAL CANCER INSTITUTE 1767-76 (Dec. 20, 2006).
- <sup>32</sup> Daniel Cohn & David Waters, *Food as Medicine: Medically Tailored, Home-Delivered Meals Can Improve Health Outcomes for People with Critical and Chronic Disease*, Community Servings 19 (Feb. 2013); *AIDSinfo; HIV and Diabetes Fact Sheet (last updated 12/15/14)*, available at <https://aidsinfo.nih.gov/education-materials/fact-sheets/22/59/hiv-and-diabetes> (last viewed Jun. 9, 2015).
- <sup>33</sup> Louise Ivers et al., *HIV/AIDS, Undernutrition, and Food Insecurity*, 49 CLINICAL INFECTIOUS DISEASES 1096–1102 (2009).
- <sup>34</sup> Daniel Cohn & David Waters, *Food as Medicine: Medically Tailored, Home-Delivered Meals Can Improve Health Outcomes for People with Critical and Chronic Disease*, Community Servings 19 (Feb. 2013).
- <sup>35</sup> Atovaquone, MEDLINE PLUS (Sept. 1, 2010), <http://www.nlm.nih.gov/medlineplus/druginfo/meds/a693003.html#why>.
- <sup>36</sup> Glanciclovir, MEDLINE PLUS (Sept. 1, 2010), <http://www.nlm.nih.gov/medlineplus/druginfo/meds/a605011.html#why>.
- <sup>37</sup> Daniel Cohn & David Waters, *Food as Medicine: Medically Tailored, Home-Delivered Meals Can Improve Health Outcomes for People with Critical and Chronic Disease*, Community Servings 19 (Feb. 2013) (citing *Guidelines for preventing opportunistic infections among HIV-infected persons*, Morbidity and Mortality Weekly Report, CENTERS FOR DISEASE CONTROL AND PREVENTION 58(RR-4) (Apr. 10, 2009)).
- <sup>38</sup> *AIDSinfo; HIV and Diabetes Fact Sheet (last updated 12/15/14)*, available at <https://aidsinfo.nih.gov/education-materials/fact-sheets/22/59/hiv-and-diabetes> (last viewed Jun. 9, 2015).
- <sup>39</sup> *Community Health Advisory and Information Network Fact Sheet: HIV/AIDS, Food and Nutrition Service Needs* (CHAIN Brief Report 2011-5; Oct. 2011), available at [http://www.nyhiv.com/pdfs/chain/Food%20Need%20Medical%20Care\\_factsheet%20v8.pdf](http://www.nyhiv.com/pdfs/chain/Food%20Need%20Medical%20Care_factsheet%20v8.pdf).
- <sup>40</sup> *Id.*
- <sup>41</sup> Studies cited in this chart include: Jordi Salas-Salvado et al., *Reduction in the Incidence of Type 2 Diabetes with the Mediterranean Diet*, DIABETES CARE. 34:14-19, 2011; Jaakko Tuomilehto et al., *Prevention of Type 2 Diabetes Mellitus by Changes in Lifestyle Among Subjects with Impaired Glucose Tolerance*, NEW ENGLAND JOURNAL OF MEDICINE. Vol. 334, No. 18, 2001; Jill Metz et al., *A Randomized Trial of Improved Weight Loss with a Prepared Meal Plan in Overweight and Obese Patients: Impact on Cardiovascular Risk Reduction*, ARCHIVES OF INTERNAL MEDICINE, 2000, 160:2150-2158; Ramon Estruch et al., *Primary Prevention of Cardiovascular Disease with a Mediterranean Diet*, NEW ENGLAND JOURNAL OF MEDICINE, Vol. 368, No. 14, 2013; David McCaron et al., *Nutritional Management of Cardiovascular Risk Factors: A Randomized Clinical Trial*, JAMA INTERNAL MEDICINE, Vol. 157, 1997; Rowan Chlebowski et al., *Dietary Fat Reduction and Breast Cancer Outcome: Interim Efficacy Results from the Women's Intervention Nutrition Study*, JOURNAL OF THE NATIONAL CANCER INSTITUTE, Vol. 98, No. 24, Dec. 2006; Ross Prentice et al. *Low-Fat Dietary Pattern and Cancer Incidence in the Women's Health Dietary Modification Randomized Controlled Trial*, JOURNAL OF THE NATIONAL CANCER INSTITUTE, Vol. 99: 1534-43, 2007.
- <sup>42</sup> *Chronic Disease Overview*, CTRS. FOR DISEASE CONTROL & PREVENTION, available at <http://www.cdc.gov/chronicdisease/overview/> (last viewed May 28, 2015).
- <sup>43</sup> *Cancer Facts and Figures, 2015*, AMERICAN CANCER SOCIETY, available at <http://www.cancer.org/acs/groups/content/@editorial/documents/document/acspc-044552.pdf> (last viewed May 20, 2015); *Cancer Costs Projected to reach at least \$158 billion in 2020*, NAT'L INST. OF HEALTH, available at <http://www.nih.gov/news/health/jan2011/nci-12.htm>.
- <sup>44</sup> *Chronic Disease Prevention and Health Promotion: Heart Disease and Stroke Prevention*, CTRS. FOR DISEASE CONTROL & PREVENTION, available at <http://www.cdc.gov/chronicdisease/resources/publications/AAG/dhdsp.htm> (last viewed May 20, 2015).
- <sup>45</sup> *The Cost of Diabetes*, AMERICAN DIABETES ASSOCIATION, available at <http://www.diabetes.org/advocacy/news-events/cost-of-diabetes.html> (last viewed May 20, 2015).
- <sup>46</sup> Daniel Cohn & David Waters, *Food as Medicine: Medically Tailored, Home-Delivered Meals Can Improve Health Outcomes for People with Critical and Chronic Disease*, Community Servings 19 (Feb. 2013).
- <sup>47</sup> Ray Y. Chen et al., *Distribution of Health Care Expenditures for HIV-Infected Patients*, 42 CLINICAL INFECTIOUS DISEASES 1003-

10 (2006).

48 *Chronic Diseases and Health Promotion*, CENTERS FOR DISEASE CONTROL AND PREVENTION, <http://www.cdc.gov/chronicdisease/overview/> (last visited Apr. 23, 2015).

49 *Id.*

50 Jill Gurvey et al., *Examining Healthcare Costs Among Manna Clients and a Comparison Group*, 4 *Journal of Primary Care & Community Health*, 311-317 (2013), available at <http://www.mannapa.org/wp-content/uploads/2014/07/MANNA-Study.pdf>.

51 *Id.*

52 *Id.*

53 *Id.*

54 *Id.*

55 *Id.*

56 *Id.*

57 *Id.*

58 MANNA, *About Manna*, <http://www.mannapa.org/about-us/history/> (last visited Oct. 29, 2014).

59 Interviews with personnel from Community Servings (Boston) and Project Open Hand (San Francisco), conducted from August-September 2014 by Sarah Downer and Malinda Ellwood, on file with authors.

60 Interviews with personnel from MANNA (Philadelphia), Community Servings (Boston), Gods Love We Deliver (New York City), Moveable Feast (Baltimore), and Project Open Hand (Atlanta), conducted from August-September 2014 by Sarah Downer and Malinda Ellwood, on file with authors.

61 Interview with Karen Pearl, CEO of God's Love We Deliver (New York) conducted Apr. 2015 by Sarah Downer, on file with authors.

62 Interview with David Waters, CEO of Community Servings (Boston), conducted May 2015 by Sarah Downer, on file with authors.

63 E-mail from Thomas Bonderenko, Exec. Dir., Moveable Feast to Duncan Farthing-Nichol, Student, Harvard Law School (Nov. 14, 2012, 12:48 EST) (on file with author); E-mail from Thomas Bonderenko, Exec. Dir., Moveable Feast to Duncan Farthing-Nichol, Student, Harvard Law School (Feb. 3, 2014, 11:13 EST) (on file with author); Interview with Thomas Bonderenko, Exec. Dir., Moveable Feast (Jul. 30, 2013); For more information about Moveable Feast, visit <http://www.mfeast.org/> (last visited Dec. 1, 2013).

64 Boston Medical Center, *Preventive Food Pantry: A Part of your Medical Care at BMC*, <http://www.bmc.org/about/news/featurestories-preventive-medicine-food-pantry-with-nutrition-education.htm> (last visited Oct. 30, 2014).

65 *Id.*

66 *Id.*

67 *Id.*

68 Boston Medical Center, *Funding Opportunities: Food Pantry and Demonstration Kitchen*, <http://development.bmc.org/foodpantry> (last visited Oct. 30, 2014).

69 Additional Requirements for Charitable Hospitals, 79 Fed. Reg. 78954, 79002 (Dec. 31, 2014) (26 C.F.R. Parts 1, 53, 602).

70 Feeding America Healthy Food Bank Hub, *Diabetes Project*, <http://healthyfoodbankhub.feedingamerica.org/diabetes-project/> (last visited Oct. 30, 2014).

71 *Id.*

72 Email from Kim Prendergast, Consultant at Feeding America to Sarah Downer, (Nov. 24, 2014), on file with authors.

73 Tiffany Fitzpatrick et al., *Looking Beyond Income and Education: Socioeconomic Status Gradients Among Future High-Cost Users of Health Care*, AMER. J. PREVENTIVE MEDICINE, 2015, available at <http://www.sciencedirect.com/science/article/pii/S0749379715000823>.

74 Agricultural Act of 2014, 7 U.S.C. § 7517 (2012).; see also USDA National Institute of Food and Agriculture, *USDA Announces up to \$31 Million to Empower People to Make Healthy Eating Choices*, [http://csrees.usda.gov/newsroom/news/2014news/009291\\_FINI.html](http://csrees.usda.gov/newsroom/news/2014news/009291_FINI.html).

75 Wholesome Wave, *Fruit and Vegetable Prescription Program® (FVRx®)*, <http://www.wholesomewave.org/our-initiatives/fruit-and-vegetable-prescription-program/> (last visited Apr. 23, 2015).

76 *Id.*

77 Wholesome Wave, *Wholesome Wave's Fruit and Vegetable Prescription Program: 2013 Report 3* (Oct. 2014), available at [http://www.wholesomewave.org/wp-content/uploads/2014/10/2013-FVRxReport\\_-Final-1.pdf](http://www.wholesomewave.org/wp-content/uploads/2014/10/2013-FVRxReport_-Final-1.pdf).

78 St. Elizabeth's Medical Center, *St. Elizabeth's Medical Center Continues Successful Steward Healthcare Farmers Market Voucher Program* (Sept. 8, 2014), available at <http://www.semc.org/news/St-Elizabeths/St-Elizabeths-Medical-Center-Continues-Successful-Steward-Health-Care-Farmers-Market-Voucher-Program>.

79 *Id.*

80 *Supplemental Nutrition Assistance Program (SNAP)*, DEP'T OF AGRICULTURE, available at <http://www.fns.usda.gov/sites/>

default/files/SNAP\_Quick\_Facts\_0.pdf (last viewed May 4, 2015).

<sup>81</sup> USDA National Institute of Food and Agriculture, *USDA Announces up to \$31 Million to Empower People to Make Healthy Eating Choices*, [http://csrees.usda.gov/newsroom/news/2014news/009291\\_FINI.html](http://csrees.usda.gov/newsroom/news/2014news/009291_FINI.html).

<sup>82</sup> Kathleen Sebelius, *Initial Report to Congress: Medicaid Incentives for Prevention of Chronic Diseases Evaluation 14* (Nov. 2013), available at [http://innovation.cms.gov/Files/reports/MIPCD\\_RTC.pdf](http://innovation.cms.gov/Files/reports/MIPCD_RTC.pdf).

<sup>83</sup> *MIPCD State Summary: Minnesota*, CTRS. FOR MEDICARE AND MEDICAID SERVS., available at <http://innovation.cms.gov/Files/x/MIPCD-MN.pdf> (last visited Apr. 23, 2015).

<sup>84</sup> Kathleen Sebelius, *Initial Report to Congress: Medicaid Incentives for Prevention of Chronic Diseases Evaluation J-5* (Nov. 2013), available at [http://innovation.cms.gov/Files/reports/MIPCD\\_RTC.pdf](http://innovation.cms.gov/Files/reports/MIPCD_RTC.pdf).

<sup>85</sup> PR Newswire, *Walmart and Humana Vitality Partner for First-of-its-Kind Healthier Food Program Designed to Incentivize Wellness in America*, Sept. 19 2012, <http://www.prnewswire.com/news-releases/walmart-and-humanavitality-partner-for-first-of-its-kind-healthier-food-program-designed-to-incentivize-wellness-in-america-170286676.html>.

<sup>86</sup> *Great for You*, Walmart, <http://corporate.walmart.com/global-responsibility/hunger-nutrition/great-for-you> (last visited Oct. 29 2014).

<sup>87</sup> *New Harvard Pilgrim wellness program aims to boost worker health, cut employer costs*, Hartford Business Journal (Nov. 3, 2014), available at <http://www.hartfordbusiness.com/article/20141103/PRINTEDITION/310319964/2013>.

<sup>88</sup> *Harvard Pilgrim offers cash rewards for eating well*, THE BOSTON GLOBE (June 20, 2014), <http://www.bostonglobe.com/business/2014/06/19/insurer-offers-incentive-eat-healthy-money/uFToGj4awrMH6VmeovPbeP/story.html>.

<sup>89</sup> *Id.*

<sup>90</sup> *Id.*

<sup>91</sup> PRWeb, *MaineHealth Taps NutriSavings to Make Healthy Grocery Shopping Easier and More Affordable for Their Employees* (June 26, 2014), <http://www.prweb.com/releases/2014/05/prweb11898394.htm>.

<sup>92</sup> *National Diabetes Prevention Program: About the Program*, CENTERS FOR DISEASE CONTROL AND PREVENTION, <http://www.cdc.gov/diabetes/prevention/about.htm> (last visited Oct. 29, 2014).

<sup>93</sup> *Diabetes Prevention Program*, NATIONAL DIABETES INFORMATION CLEARINGHOUSE, <http://diabetes.niddk.nih.gov/dm/pubs/preventionprogram/?control=Pubs#study> (last visited Apr. 23, 2015).

<sup>94</sup> Ann Albright, Ph.D, R.D., Director, Div. of Diabetes Translation, Ctrs. For Disease Control & Prevention, *Together on Diabetes Summit 2015*, Feb. 24, 2015.

<sup>95</sup> Am. Diabetes Ass'n, *Economic Costs of Diabetes in the United States in 2012*, 36 DIABETES CARE 1033 (2013), available at <http://care.diabetesjournals.org/content/36/4/1033.full.pdf+html>.

<sup>96</sup> The states that cover DPP for state employees are Colorado, Kentucky, Ohio, and Washington. *Preventing Type-2 Diabetes: health insurance coverage*, NATIONAL ASSOCIATION OF CHRONIC DISEASE DIRECTORS, available at [http://www.chronicdisease.org/?NDPP\\_insure](http://www.chronicdisease.org/?NDPP_insure) (last visited Apr. 23, 2015).

<sup>97</sup> *The Y Launches Project to Test Cost Effectiveness of the YMCA's Diabetes Prevention Program Among Qualifying Medicare Enrollees*, THE YMCA, <http://www.ymca.net/news-releases/y-launches-project-to-test-cost-effectiveness-of-ymcas-diabetes-prevention-program-among-qualifying-medicare-enrollees> (last visited Nov. 19, 2014).

<sup>98</sup> *Id.*

<sup>99</sup> *Medicare Diabetes Prevention Act of 2015*, H.R. 2102 – 114<sup>th</sup> Congress (2015-2016); *Medicare Diabetes Prevention Act of 2015*, S. 1131 – 114<sup>th</sup> Congress (2015-2016), available at <https://www.congress.gov/bill/114th-congress/senate-bill/1131/text> (last viewed May 20, 2015).

<sup>100</sup> Estimated Federal Impact of H.R. 962/ S. 452 “The Medicare Diabetes Prevention Act,” AVALERE, AM. DIABETES ASS’N, YMCA, & AMER. MEDICAL ASS’N, Feb. 2014.

<sup>101</sup> Eat Smart, Move More, Weigh Less, *How it Works*, <https://esmmweighless.com/how-it-works/> (last visited Oct. 29, 2014).

<sup>102</sup> *Id.*

<sup>103</sup> Eat Smart, Move More, Weigh Less, *By the Numbers*, <https://esmmweighless.com/success-stories/program-statistics/> (last visited Oct. 29, 2014).

<sup>104</sup> *Id.*

<sup>105</sup> Eat Smart, Move More, Weigh Less, *ROI Data*, <https://esmmweighless.com/groups-businesses/roi-data/> (last visited Nov. 19, 2014).

<sup>106</sup> *Chronic Diseases: The Power to Prevent, The Call to Control: At a Glance 2009*, CENTERS FOR DISEASE CONTROL AND PREVENTION (Dec. 2009), <http://www.cdc.gov/chronicdisease/resources/publications/aag/chronic.htm>.

<sup>107</sup> See 42 C.F.R. §§ 435, et seq. (see also KAISER FAM. FOUND., *MEDICAID A PRIMER* (2013), available at <http://kaiserfamilyfoundation.files.wordpress.com/2010/06/7334-05.pdf>).

<sup>108</sup> See Samantha Artiga, Jessica Stephens, & Anthony Damico, *The Impact of the Coverage Gap in States Not Expanding Medicaid by Race and Ethnicity*, KAISER FAMILY FOUNDATION (April 2015), <http://files.kff.org/attachment/issue-brief-the-impact-of-the-coverage-gap-in-states-not-expanding-medicaid-by-race-and-ethnicity> (last visited Apr. 7, 2015) (finding that 14.4 million uninsured Americans would be eligible if all states expanded Medicare, but approximately 3.7 million fall

into the “coverage gap”).

- <sup>109</sup> See 42 C.F.R. §§ 441.300, et seq.; *Home and Community Based 1915(c) Waivers*, MEDICAID, <http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Waivers/Home-and-Community-Based-1915-c-Waivers.html> (last visited Dec. 1, 2013).
- <sup>110</sup> See 42 C.F.R. §§ 431.400, et seq.; *Section 1115 Demonstrations*, MEDICAID, <http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Waivers/1115/Section-1115-Demonstrations.html> (last visited Dec. 1, 2013).
- <sup>111</sup> 42 U.S.C. § 1396n(i); see CTRS. FOR MEDICARE & MEDICAID SERVS. *Re: Improving Access To Home and Community Based Services* 8 (Aug. 6, 2010), [http://www.healthreformgps.org/wp-content/uploads/he08092010\\_waiver.pdf](http://www.healthreformgps.org/wp-content/uploads/he08092010_waiver.pdf).
- <sup>112</sup> See 42 C.F.R. §§ 441.300, et seq.; *Home and Community Based 1915(c) Waivers*, MEDICAID, <http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Waivers/Home-and-Community-Based-1915-c-Waivers.html> (last visited Dec. 1, 2013).
- <sup>113</sup> For more detailed information on coverage of medically-tailored meals and nutritional counseling, see CHLPI’s first *Food is Medicine* publication. Ellwood et al., *Food is Medicine: Opportunities in Public and Private Healthcare for Supporting Nutritional Counseling and Medically-Tailored, Home-Delivered Meals*, 9-23 (2014), available at <http://www.chlpi.org/wp-content/uploads/2013/12/6.5.2014-Food-is-Medicine-Report-FINAL.pdf>; See 42 C.F.R. §§ 431.400, et seq.; *Section 1115 Demonstrations*, MEDICAID, <http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Waivers/1115/Section-1115-Demonstrations.html> (last visited Dec. 1, 2013).
- <sup>114</sup> *CMS Manual System, Subject: Chapter 4, “Benefits and Beneficiary Protections”* CTRS. FOR MEDICARE & MEDICAID SERVS., DEP’T OF HEALTH & HUMAN SERVS., available at <http://www.cms.gov/Regulations-and-Guidance/Guidance/Transmittals/downloads/R97MCM.pdf>; *The Medicare Beneficiary Population: Fact Sheet*, AARP POLICY INST., available at [http://assets.aarp.org/rgcenter/health/fs149\\_medicare.pdf](http://assets.aarp.org/rgcenter/health/fs149_medicare.pdf).
- <sup>115</sup> *Medicare Managed Care Manual*, CTRS. FOR MEDICARE & MEDICAID SERVS., 35-37, <http://cms.gov/Regulations-and-Guidance/Guidance/Manuals/Downloads/mc86c04.pdf>
- <sup>116</sup> *Id.*
- <sup>117</sup> *Your Guide to Special Needs Plans (SNPs)* CTRS. FOR MEDICARE & MEDICAID SERVS. available at <http://www.medicare.gov/Pubs/pdf/11302.pdf>.
- <sup>118</sup> *CMS Manual System, Subject: Chapter 4, “Benefits and Beneficiary Protections”* CTRS. FOR MEDICARE & MEDICAID SERVS. & DEP’T OF HEALTH & HUMAN SERVS., available at <http://www.cms.gov/Regulations-and-Guidance/Guidance/Transmittals/downloads/R97MCM.pdf>.
- <sup>119</sup> Patient Protection and Affordable Care Act, 42 U.S.C. §1315(a) (2010).
- <sup>120</sup> Disabled individuals must have been disabled for more than twenty-four months or have end-stage renal disease. *Medicare*, SOCIAL SEC. ADMIN., <http://www.socialsecurity.gov/pubs/EN-05-10043.pdf> (last visited Dec. 1, 2013).
- <sup>121</sup> *Estimated Federal Impact of H.R. 962/ S. 452 “The Medicare Diabetes Prevention Act,”* AVALERE, AM. DIABETES ASS’N, YMCA, & AMER. MEDICAL ASS’N, Feb. 2014, available at <http://www.diabetes.org/assets/pdfs/advocacy/estimated-federal-impact-of.pdf>.
- <sup>122</sup> *Accountable Care Organizations*, CTRS. FOR MEDICARE & MEDICAID SERVS. <http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/ACO/index.html?redirect=/ACO/> (last visited Dec. 1, 2013).
- <sup>123</sup> AMERICAN HOSP. ASS’N. *Fast Facts on US Hospitals* (Jan. 2015), <http://www.aha.org/research/rc/stat-studies/101207fastfacts.pdf> (last visited Apr. 21, 2015) (taking not-for-profit hospitals (2,904) over total registered hospitals (5686) is 51%).
- <sup>124</sup> See *Additional Requirements for Charitable Hospitals*, 79 Fed. Reg. 78953, 79002 (Dec. 31, 2014), available at <http://www.gpo.gov/fdsys/pkg/FR-2014-12-31/pdf/FR-2014-12-31.pdf#page=320> (last visited Apr. 23, 2015).
- <sup>125</sup> *Id.*
- <sup>126</sup> Martha H. Somerville, *Community Benefit in Context: Origins and Evolution – ACA § 9007*. THE HILLTOP INSTITUTE 4 (2012), <http://www.hilltopinstitute.org/publications/CommunityBenefitInContextOriginsAndEvolution-ACA9007-June2012.pdf> (last visited Mar. 19, 2015).
- <sup>127</sup> See Donald M. Berwick et al., *The Triple Aim: Care, Health, and Cost*, 27 *HEALTH AFFAIRS* 759-769 (2008).



This paper was made possible with generous support from the M·A·C AIDS Fund.

©2015

