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Diabetes and Food Access in Philadelphia

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Abstract

Leaders of public health and government, social activism groups, and public dialogues draw on the connections between nutrition, food access, obesity, and diabetes to legitimate claims and efforts. This research project aims to link problems of food access to the public health epidemic of diabetes within the scope of the city of Philadelphia

Disciplines

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Diabetes and Food Access in Philadelphia
Senior Thesis
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Abstract

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Introduction

The following research explores whether high diabetes rates in North and West Philadelphia are aggravated by lack of fresh fruits and vegetables in the immediate environment. Food policies on the national scale and at the local scale have led to disparate geographies of food access and disparate rates of diabetes incidence in Philadelphia today. Leaders of public health and government, social activism groups, and public dialogues have drawn on the connections between nutrition, food access, obesity, and diabetes to legitimate their claims and efforts. This research project aims to link problems of food access to the public health epidemic of diabetes within the scope of the City of Philadelphia.

In the following sections, I explore the interaction of food access and diabetes in Philadelphia through several perspectives. First, I discuss the implications of linking food and diabetes through the lens of medical anthropology. I then examine epidemiological data and the positions of government and private leaders as they relate to nutrition and health in the city. My own investigation into SHARE, Inc. in North Philadelphia and Mill Creek Farm and Educational Center in West Philadelphia, further provides a first person perspective on the issues being discussed. Although brief, my fieldwork attests to the complexities of social interaction at the neighborhood level in efforts to increase access to healthy food. Finally, I draw on Vitiello and Nairn's (2008) Harvest Report for the historical context of food access and urban gardening in Philadelphia. This historical context precedes discussion of the topics in contemporary studies.

Statistical and geographic representations of the city are also provided to better conceptualize the geography of food and diabetes in Philadelphia. Maps and tables focus on North and West Philadelphia to highlight the overlap of the key topics: diabetes rates, vacant land and urban gardens, fast food locations, and food access data.

Nutrition and the Medical Perspective

The Medicalization of Food in Type II Diabetes Care

Private and government based health research organizations emphasize nutritional foci over genetic indicators in the causes of diabetes type II. While genetic predisposition informs insulin resistance and pancreatic β -cell function characteristic of type II diabetes mellitus (T2D)(Bell, 2001), the American Diabetes Association associates America's diabetes epidemic with lifestyle factors rather than genetic susceptibility (ADA, 2008). Their recommendations assert that "lifestyle changes characterized by increased energy intake and decreased physical activity appear to have together promoted overweight and obesity, which are strong risk factors for Diabetes"(ADA, 2008, p. S63). Thus type II diabetes is increasingly considered to be a disease resulting from lifestyle factors of diet and exercise (Knowler et al. 2002). However, the link between diet and T2D is unclear, since multiple explanations for causation exist. People may develop an allergy to refined sugar, which causes insulin resistance, while glucose overload due to high frequency and volume of highly processed high sugar foods may lead cells to resist sugar intake (Barnes, 2005).

The ADA (2008) conceptualizes nutrition for diabetes care as Medical Nutrition Therapy (MNT), with the aim of sustained weight loss as the indicator to avoid risks and complications. The recommendations are research-based and clearly indicate that better nutrition facilitates significant reduction in weight, which is desirable because obesity is a major diabetes risk factor and a deterrent to regulation of blood glucose levels and blood pressure for people with diabetes (Pastors, 2003). The goals of MNT are maintenance of normal blood glucose levels and blood pressure and non-risky lipid and lipoprotein profiles. The strongest clinical evidence for the achievement of these goals is through weight loss (Knowler, 2002).

Nutrition and lifestyle change for diabetes care aims to avoid or forestall chronic diabetes complications through weight loss, healthy eating, and exercise. The ADA goals of nutrition recommendations cite primarily diabetes prevention, secondarily to prevent complications, and thirdly to prevent death from diabetes (2008). Complications of diabetes can include blindness and neuropathy from cellular damage to eyes and nerves. Cellular damage of the heart and blood vessels can lead to heart attacks, strokes, or arteriosclerosis. Nerve damage can also result in loss of sensation in extremities and impaired healing and infection risk (Mol, 2009) (Ewing and Clarke, 1982).

While the ideal proportion of different nutrients for a diabetes reduction diet is debated, multiple studies confirm that reduced saturated fat intake improves insulin resistance even when energy intake was not changed (ADA, 2008). In addition, the National Research Council (2005) referenced multiple studies demonstrating that fiber reduces glycemic response and slows glucose absorption, leading to beneficial blood sugar responses for people with diabetes. In the ADA's (2008) recommendations, a good goal for individuals with T2D would be to meet the general population's recommended fiber intake of 14g/1,000 kcal. Multiple studies have found correlations between obesity and diabetes risk and high fat intake and diabetes risk, although there has been less success in discriminating whether obesity or high fat intake is more influential in disease onset (Dam et al., 2002).

Research in the medical field has not yet defined ideal nutrient ratios for a general or diabetic diet. While federal nutrition guidelines offer daily nutritional allowances to the general population, translation from grams of a nutrient to real food can be imprecise in clinical practice and daily life (Wolf et al., 2004). Since the ADA's guidelines are based on clinical trials and

present multiple avenues to weight loss, the guidelines foreground the tailoring of MNT to the individual by a registered dietician.

Beyond working with a dietician for nutritional solutions for managing diabetes, a patient must be able to access sufficient fiber and low fat foods to comply with the healthy diet recommended for diabetes care. However, not all diabetes patients have the opportunity to work with a dietician to address the many barriers to healthy eating. Clinical studies have confirmed intuitive reasoning that consuming healthy fresh foods reduces both obesity and the effects of T2D significantly (Pastors et al., 2002). Yet, real life ability to visit a venue selling or distributing fresh foods and ability to pay for those healthy foods over the long-term remains a question for many areas in the U.S.

Nutrition as a key determinant of onset and care of T2D leads to the medicalization of nutrition. Food can be seen as achieving the status or importance of drugs, because diet is so associated with Type II diabetes. Concerning Type II diabetes, food becomes medicalized because medical scientists have shown that it is a determining factor in the disease and medical doctors attempt to regulate it for the health of the patient. When discussing nutrition as a determinant of disease, risks of disease and categories are constructed. In the context of medical nutritional therapy and other regimes for diabetics, consumption of sugary and fatty foods is seen as a deviant behavior that needs to be controlled (Broom and Whittaker, 2004). Certain foods could take on another meaning in society that they did not previously have, for example, sweet drinks and soda now being specifically associated with diabetes, and labeled as bad.

Ulrich Beck's (1992) discussions on the risk society paradigm deals with how ideas of risk are introduced in modernization. Beck characterizes modern risks as invisible and open to social construction and definition. The creation of new political identities happens in the social

context of disease. Beck's points relate to the shift in meaning that takes place when food becomes medicalized for a patient with diabetes. Food types have been given new values based on their impact on the health of the individual. For example, groups like the ADA socially advocate for information and rights and research into the disease, and this activism is an example of the political identities created in the context of disease. At the level of personal politics, adherence to a healthy or special diabetes diet may also construct a new or different identity for the individual.

The idea of nutrition as medicine merges areas of medical recommendation with personal choice, bringing in dynamics of control. Ian Hacking (1999) argues in Making Up People that social reality is conditioned, stabilized, or created by the labels we apply to people and actions and communities. Hacking argues that, in becoming identified with a disease category, the individual becomes the property of that medical term. He cites Michel Foucault's *anatomopolitics of the body* (Hacking, 1999), which applies to the discussion of diabetes as speech surrounding nutrition and disease makes a comment on bodies. When researchers or experts in the science or medical field assert that certain actions and behaviors cause or contribute to chronic diseases like T2D, disease categories expand. The behaviors and actions are given new value laden meanings: fried or baked foods and treats become unhealthy or bad foods. People's identities and politics are changed by these social implications of the medicalization of food in diabetes care.

New concepts of risk and identity result when we learn more about causation of diseases. Nutrition as a cause of disease creates a displacement that Farmer (2001) warns about in Immodest Claims of Causality: the displacement of the burden of deep social inequalities onto the patient. Important questions come from Farmer's point about displacement: does a focus on

nutrition as a cure or a practice to reduce disease effectively blame those with certain diseases for their lifestyle choices? If an obese person develops diabetes, are they blamed for creating their own health problems through their diet and daily choices? In an effort to reexamine the placement of blame, the rest of the paper focuses on the variables that inform food choices and access. Its main thesis is that the food environment and economic and social geographies are strong determinants of health.

Research Sites and Methods

This discussion moves from perspectives of medical conceptions of the role of nutrition in diabetes care to a practical view that discusses access to healthy food in areas of high diabetes incidence. In the interest of specificity and the scope of this project, the City of Philadelphia was the focus area for research and discussion. The following section explores efforts to provide better nutrition in Philadelphia legitimated by the linkage between obesity and diabetes. It examines the geography of healthy food access in Philadelphia in an attempt to gain insights about how individuals can achieve healthy eating in the long term.

Dialogues surrounding diabetes in Philadelphia echo the correlation between obesity and diabetes that the medical community's research identifies. The following discussion recounts informal and formal dialogues surrounding claims about nutrition relating to diabetes care. I examine efforts for increased food access in Philadelphia that are legitimated by the premise that healthy eating prevents and minimizes diabetes. My arguments and representation of Philadelphia's food access efforts are based on field notes from visits to local city gardens and food distributors. Public addresses by prominent figures in local food organizations and from the city government also inform this discussion. Government programs and policies emerge through

these dialogues as influential forces in Philadelphian's access to food. In addition, community perspectives reveal a broad picture of the food infrastructure and efforts to increase fresh food access in the interest of chronic disease prevention.

Dr. Whitfare*, a Dallas-based endocrinologist, deals with diabetic patients in much of his practice. He emphasized the nutritional aspect within the context of American food geography in one of three key facts and advice that he conveyed to me:

- (1) As of this moment, 1/3 of individuals with diabetes DON'T KNOW that they have it (Chamberlain and Ciccarone, 2006). This number was 1/2 about 20 years ago, indicating that some progress has been made in educating the public about the disease.
- (2) The incidence of T2D is increasing worldwide and is roughly proportional to the numbers of McDonald's and KFC restaurants. Of course, the correlation is to "western culture" more than to these specific eateries, but it is informative nonetheless (Editors, 2012).
- (3) Those who are at high risk for diabetes can avoid its progression with lifestyle change. The results of the Diabetes Prevention Program show that lifestyle change of 7% weight loss and 150 minutes of physical activity per week was significantly more effective than metformin treatment of 850 mg twice a day (Knowler et al., 2002).

Diabetes claims often revolve around food because of the obesity linkage discussed, and particularly the fast-food problem that Dr. Whitfare notes. The implications of these claims can result in judgments and placements of blame on people with diabetes. In some conceptions of diabetes, people with the disease are thought to have brought it on themselves by eating too much fatty, fried, or otherwise unhealthy food (Lawton, 2007). Simplistic forms of blame leave out the dynamics of price and location in food access. Discussions of nutrition and diabetes care run the risk of exaggerating patient agency; as Paul Farmer (2001: 258) describes in *Infections*

and Inequalities, “calls to change ‘lifestyle and behavior’ are often directed to precisely those persons whose agency is most constrained”. From the perspective of medical anthropology, a thoughtful analysis of food availability in neighborhoods in Philadelphia may reveal the social origins of disease (Janes and Corbett, 2010).

In this thesis, I highlight structural determinants that make some neighborhoods more reliant on fast foods than others, and thus more vulnerable to T2D. This analysis focuses on the immediate food offerings of neighborhood environments in Philadelphia as determinants of food choices. Insights from prominent individuals representing government, local organization, and restaurant and farming institutions provide explanations for the political context and regional history of food access and health in the city.

Diabetes type II is emerging with alarming speed across the U.S., and brings to light fundamentally unpleasant realities and debates. Health disparities and the dynamics of truth making in the medical world are reflected in the public sphere. Higher prevalence of diabetes among black people than among white people in Philadelphia, exposes disparities and tensions of racial inequality (Philadelphia Department of Public Health, 2011). Awareness of health disparities spans generations: a young woman from Northwest Philadelphia posts on her blog that “the idea that Diabetes can be managed through diet is a lie created by white people” (Meanie, 2011). These claims are of interest because the social perception of disease affects the experience of those living with diabetes. Epidemiological perspectives, as well as social discourse and realities of the physical environment, yield insights into to nutrition and diabetes as they relate to food access in Philadelphia.

The results of this project will be presented in the following manner. First, I examine the food environment of areas of the city where diabetes type II is highest. Next, I review

information circulating in the public domain about how nutrition is related to diabetes. I then consider this discussion through the perspective of medical anthropology. Recognizing the complexities in the experience managing diabetes, I consider food access as one of many factors in health for all Philadelphia residents, especially people with diabetes.

Diabetes and Obesity in Philadelphia

As of 2009, Philadelphia had the second highest prevalence of diabetes among the ten largest counties in the U.S. (CDC, 2009), and the Department of Public Health (2011) reports that the diabetes rate among Philadelphians over 18 has increased from 9.4% in 2000 to 13.3% in 2010. According to the Philadelphia Department of Health's Vital Statistics report, one in eight Philadelphians has type II diabetes. For Philadelphians, diabetes was the 8th leading cause of death in 2009. This report also shows significant racial-ethnic disparities exist among those affected by diabetes: Non-Hispanic Black men had 2.1 times the rate of death caused by diabetes than Non-Hispanic White men, and Non-Hispanic Black women had 2.4 times higher rate of death caused by diabetes than Non-Hispanic White women (Figure 1).

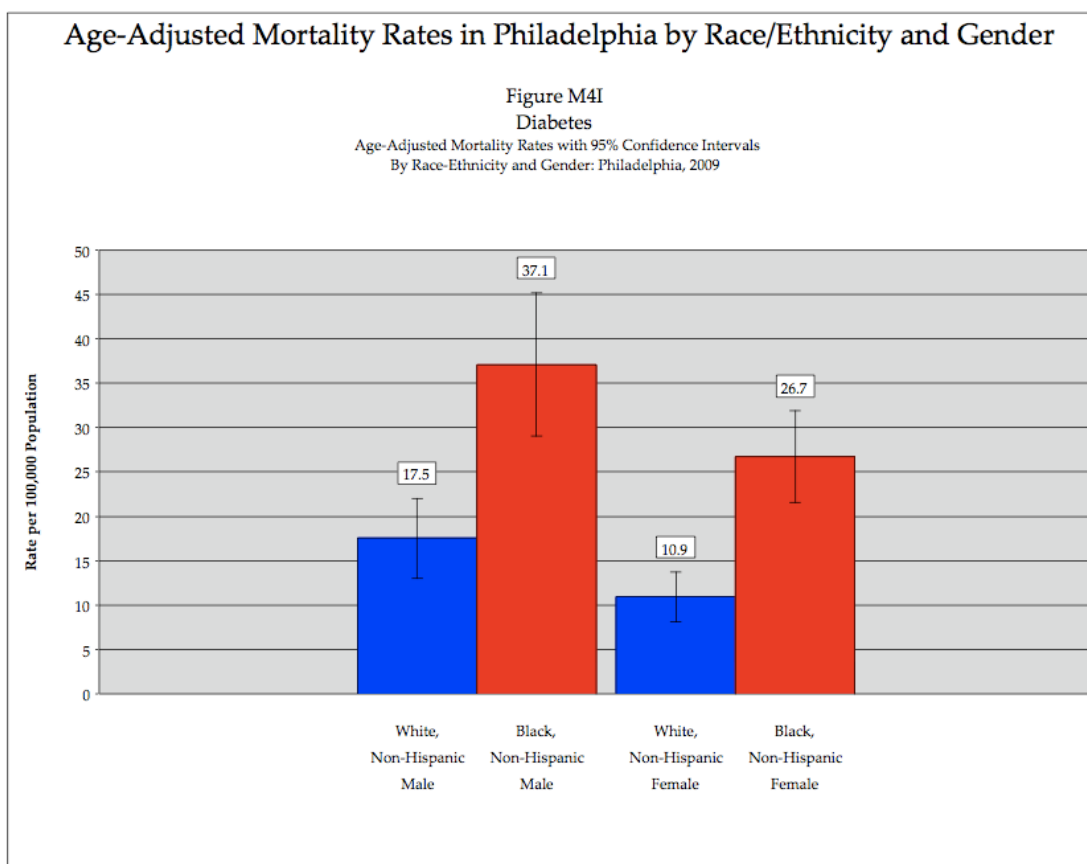


Figure 1. Age- Adjusted Mortality Rates in Philadelphia by Race/ Ethnicity and Gender

Overall, as of 2008, 12% of White adults, 13% of Latino adults, and 15% of African American adults had type II diabetes. The distribution of disease incidence is highest in the areas of West, North and Upper North Philadelphia. The percentage of the 18+ populations that had ever had diabetes in these areas is 17.8 % (West), 17.7% (North and Upper North), and 16.3% (Lower North) (Department of Public Health, 2010).

The city provides further information on chronic disease indicators for each planning district. The latest indicators, from 2010, reveal interesting correlations among districts with high diabetes incidence and reported difficulty finding fruits and vegetables. Interestingly, fast

food consumption across the city has less variance than other indicators. This observation suggests that the geography of food access is more complex than simply the prevalence of fast food restaurants. As later commentary from local officials and professionals reveals, the food and policy landscape that informs rates of diabetes and obesity also complicate geographies of food access.

The following chart presents data selected from the Public Health Department's Chronic Disease by Planning District (Figure 2). It highlights statistics pertinent to food access and diabetes in the focal neighborhoods of North Philadelphia and West Philadelphia, the neighborhoods with the highest incidence of adults who have ever had diabetes.

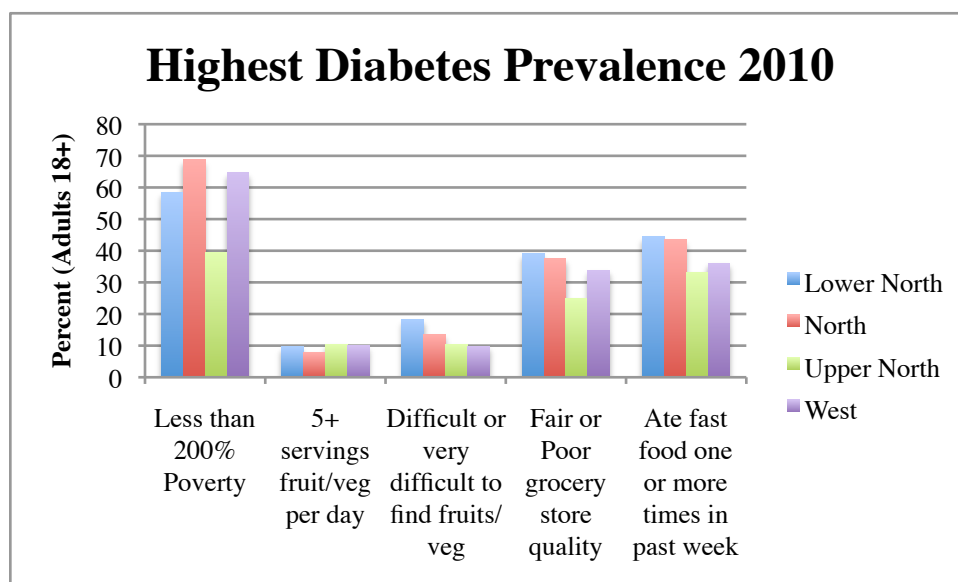


Figure 2. Highest Diabetes Prevalence 2012 in Selected Philadelphia Neighborhoods

Variation in access to fruits and vegetables across the areas that share high diabetes incidence are readily apparent. The three areas share relatively high fast food consumption, although, as a reference point, the lowest reported fast food consumption was 30.9% eating fast

food one or more times per week, in central Philadelphia. While available survey data reveals part of the situation, ground level efforts and perspectives can yield further insight into determinants of health in West and North Philadelphia.

Figure 2 shows that grocery store quality is perceived as poor by a large proportion of the populations in the areas with the highest diabetes rates. Fast food consumption is also high, reflecting the appeal of low price and the prevalence of fast food locations in the West and North Planning Districts. I made the following map (Figure 3) using Reference USA's index of business locations. I selected the most common fast food chains of a very extensive list of fast food locations across the entire city. The brands represented in the map include McDonald's, Wendy's, Burger King, KFC, and Church's Chicken. For viewing simplicity, all chain brands are mapped across the city using the same point. It is apparent that fast food locations generally cluster in the North Philadelphia planning district. This figure further highlights the convenience of fast food in North Philadelphia. The concept of accessibility involves much more than distance, however, and a practical starting point for discussion of food access starts with what foods are most convenient for people. The following section on policy further examines factors affecting food access in the city of Philadelphia.

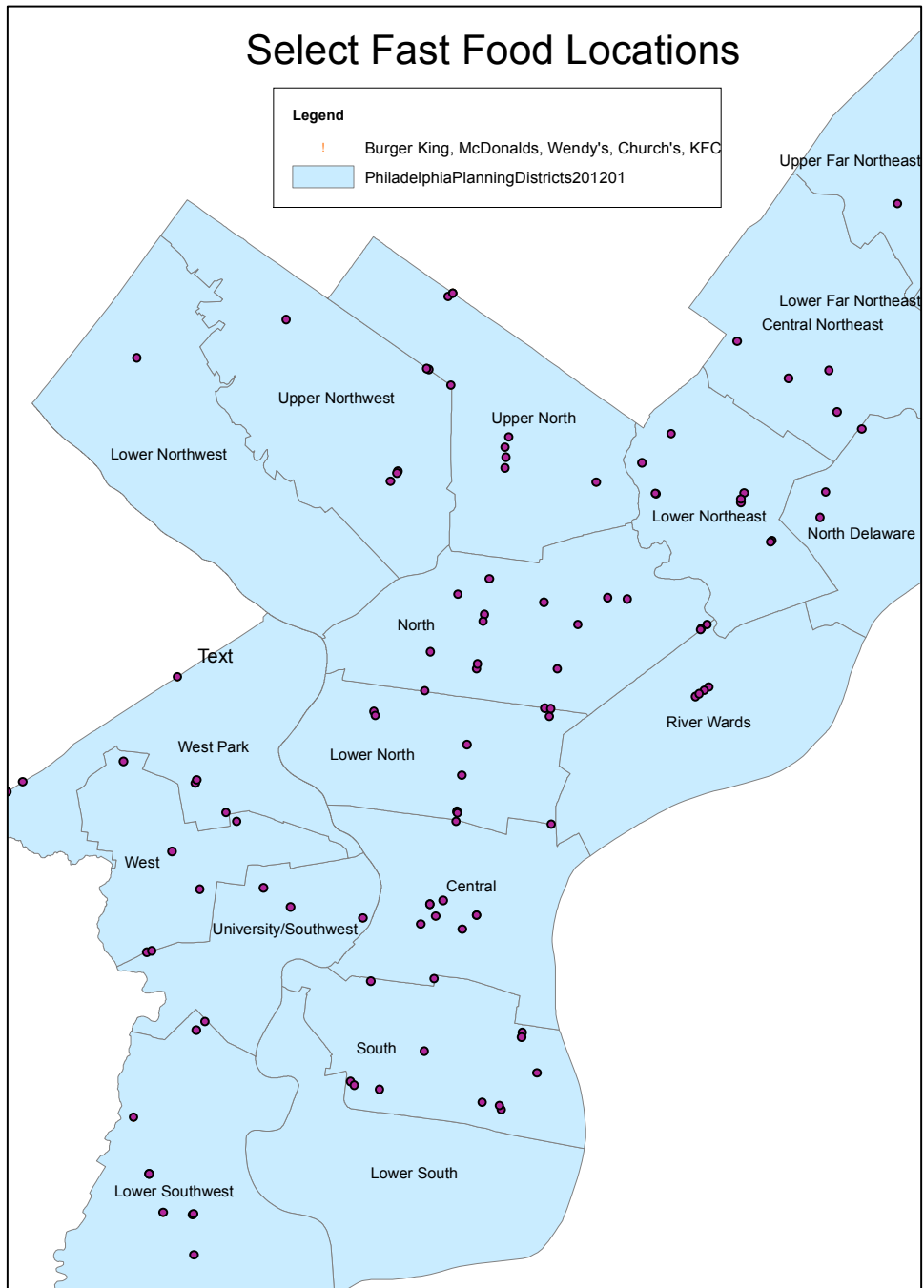


Figure 3. Locations of McDonald's, Burger King, KFC, Wendy's, and Church's in Philadelphia

Policy Actors: Nutrition in Philadelphia

Public health related organizations draw on links between obesity and diabetes in their advocacy of food access issues in Philadelphia. Philadelphia's Department of Public Health has multiple programs concerned with Philadelphian's access to healthy food in terms of affordability and location (<http://www.foodfitphilly.org/get-healthy-philly/>).

Amanda Wagner, Food Policy Coordinator for the Philadelphia's Department of Public Health, participated in a food system panel at the University of Pennsylvania this spring. She specifically brought up diabetes at the panel, pointing out that, when people do not have easy access to healthy food, they are more likely overweight or obese, making them at risk for T2D. Wagner noted that, in Philadelphia, "food that can make you sick is everywhere," and described the Get Healthy Philly program of the Department of Health (Wagner, 2012). The Get Healthy Philly program is a public health initiative that aims to increase healthy food consumption, minimize unhealthy food and beverage consumption, and increase physical activity (Philadelphia Department of Health, 2010).

The Food Fit Philly program is a subset of the Get Health Philly initiative aiming to put healthy food within a quarter mile of every home in Philadelphia, whether through a supermarket or farmers market or healthy corner store. Rationales for the effort lie in the statistics of fresh food consumption: 25% of children and 30% of adults have one or less than one serving of fruits and vegetables daily in Philadelphia (Philadelphia Department of Health, 2010). Multiple neighborhoods in the city are characterized by high fast food consumption, minimal fresh food access and consumption, and high rates of obesity. The Get Healthy Program looks to end this triple correlation through efforts directed toward making corner stores healthier, creating farmer's markets in low-income areas, and making school food healthier. Participating

organizations include Farm to City, The Food Trust, The Greater Philadelphia Coalition Against Hunger, and Let's Move. Farm to City is a small business in Philadelphia that coordinates efforts to connect Philadelphians with local healthy fresh food, including Community Supported Agriculture (CSA) groups, buying clubs, farmers markets, and events (Farm to City, 2006). The Food Trust is a nonprofit organization with the mission of ensuring access to nutritious and affordable food through coordinating neighborhoods, businesses and policymakers, while Let's Move is Michelle Obama's program to increase physical activity nationwide.

Wagner (2012) also notes the objective of "keeping people in the food stamp programs in the mainstream" of food consumption, meaning, enabling them to shop anywhere they want. SNAP stands for the Supplemental Nutrition Assistance Program, known previously as the Food Stamp Program (Greater Philadelphia Coalition Against Hunger, 2010). SNAP is available to individuals with before tax incomes below \$1,452 and \$2,980 for households of four persons. As of February 2012, 478,448 people or 31% of Philadelphia residents, used SNAP to buy groceries with an ACCESS card that works like a debit card (Greater Philadelphia Coalition Against Hunger, 2010). The card can be used to buy cold foods and other assorted items, but not hot or prepared foods. The significant portion of the city using SNAP to buy food presents a public health opportunity to incentivize healthy food purchase on a large scale. Philadelphia's SNAP program facilitates recipient's access to fresh produce through Philly Food Bucks in coordination with Farmer's Markets across the city. At farmer's markets, for every \$5 spent in SNAP, the consumer gets \$2, thus incentivizing purchase of local fresh food (Philadelphia Department of Health, 2010). The program also funded 10 new farmer's markets across the city through the Fair Food Program. For Wagner (2012), these "access points" are good developments in the ultimate goal, "to make the healthy choice the easy choice".

Wagner indicated that the government's priority is simply giving Philadelphians access to healthy food rather than the added characteristics of local and organic. The local food movement in Philadelphia advocates all of the above, but Wagner noted a tension at the national level about what the policy demands should be. The goal is simply to maintain the existing benefits and protect the policy from political attack, implying that making local and organic food available is beyond the interests and bounds of their capabilities and interests. The implication is that asking for local, organic, and fresh healthy food would be asking too much (Wagner, 2012).

For players in the local living economies movement, demands on the government are more specific and critical of the entire food system. Judy Wicks, founder of the White Dog Restaurant, the White Dog Foundation, and Fair Food, also spoke at the Food Summit at the University of Pennsylvania. Wicks denounced the Farm Bill's federal subsidies to corn producers (USDA, 2008). An end to the subsidies would change the way meat and grains are raised in America and make the unhealthy fast food less cheap and profitable for their companies. Wicks said that chips were effectively subsidized with tax dollars, and that the lowered prices drive people towards cheap and unhealthy food (Wicks, 2012) (Editors, 2012). If these subsidies were stopped, then the market for smaller businesses and local farmers and organics would be a level playing field and prices would even out.

Mary Seton Corboy, cofounder and Chief Farm Hand of Greensgrow Farm (in the Kensington neighborhood of Philadelphia), echoed Wick's characterization of the food system in the U.S as the ultimate policy culprit, asserting, "we are raised to want and expect cheap food" (Seton Corboy, 2012). She observed that large fast-food corporations commit to maintaining a low price at the expense of their workers and quality and supply chain. She complained that there is no direct link between the price of the food and the source of the food, the farmers and

workers at the supply end. By contrast, at establishments that purchase locally raised food and produce, demand directly influences the price and the income of the farmer producing the goods. In the case of the local economy between farmers and the establishments patronizing them, Seton argued that the dollar actually has power and value.

Wagner, Wicks, and Seton are all grappling with the fundamental issue of the fast-food western diet that Dr. Whitfare summarized. The essential critique made by the local movement is that the structure of food policy enables the types of foods that are increasing likelihood of diabetes for more and more people, and making diabetes more difficult to manage. Speaking at the University of Pennsylvania's food system panel, all three local professionals alluded to the intertwined nature of food production and land and oil resources (Pollan, 2006).

As Michael Pollan (2006) explains in *The Omnivore's Dilemma*, the U.S. food system is built on oil use and synthetic nitrogen fertilizers. The Farm Bill referred to above was initially passed to protect farmers from price fluctuations through the 1930s. Yet, currently subsidies from the federal government to farmers serve to control what crops are grown and prices. As Oran Hesterman (2011) describes in *Fair Food*, farmers are financially dependent on the safety net that the government provides through payments if the price of corn falls. Farmers are therefore trapped into growing corn rather than more diverse array of crops. Surplus corn is fed to steer, chicken, pig, lamb, dairy cows, and more. High fructose corn syrup can be found in countless beverages as well as in processed goods like ketchup, syrup, condiments, and canned fruit (Pollan, 2006).

Bill Clark is the President and Chief Executive of Philabundance, the largest hunger relief agency in the Philadelphia area, which feeds 65,000 people every week (Philabundance, 2010). In an interview with the local WHYY radio station, Clark addressed the impact of the Farm Bill

on the food system (Moss-Coane, 2011). Clark stated that the nutritional profiles and obesity rates are the result of years of agriculture and energy policy, and reiterated that shifts in the allocation of resources in the agricultural community impact the entire system. For example, investment in biofuel creates higher food prices, and investing in corn for energy takes wheat out of production. Clark identified correlations between hunger, poverty, and food deserts, framing obesity and diabetes as results of the foods that are available at certain price points. He characterized economically stressed diets as poor in protein, higher in carbohydrates, and higher in fat as adding up in long run. “Conditions like hypertension and diabetes happen not because you broke your diet and had a hamburger,” said Clark, “but because you live in an environment where the diet has changed every day.” Clark asserts that knowledge or education is not the main barrier to healthy choices, rather, people buy what is available (Moss-Coane, 2011).

Mari Gallagher is a Chicago-based researcher and President of Mari Gallagher Research and Consulting Group and the National Center for Public Research. Her work in food access has been formative, as she publicized the concept of a food desert and pushed Chicago Congressman Bobby Rush to put the term in the new Farm Bill. Gallagher defines food desert as “large geographic areas that cluster that have no or distant mainstream grocery stores” (Moss-Coane, 2011). When interviewed on public radio, Gallagher described the situation that a Philadelphia farmer also recounted to me: People simply can’t find nutritious food. Some children have never seen strawberries or grapes, or fresh spinach. In areas with lots of fast food and convenience stores, gas station super marts, and dollar stores, food is processed and unhealthy. Gallagher is careful to note that the so-called fridge stores, which do not prioritize fresh food, are only detrimental to health when they are the sole food retailer in an area. Her argument was that it was disingenuous to expect people to “just say no to fatty food” when quality fresh foods may

not be available in their environment. Another key term developed by Gallagher is the convenience food factor: people buy food closest to them most regularly, even if they would like to shop elsewhere or even need better quality food due to health issues like diabetes.

Urban Gardening: Fresh Produce in West and North Philadelphia

The University of Pennsylvania's food summit gave me an opportunity to hear many of the policy actors mentioned above in person. Intrigued by Mary Seton-Corboy's efforts in Kensington, I found that urban gardening also takes place in the West and North Philadelphia districts. This new information led me to explore the Mill Cree Farm and Educational Center and SHARE, Inc. within the City of Philadelphia.

The Mill Cree Farm and Educational center is located at 4901 Brown Street in West Philadelphia. Jade Walker, a co-founder, was recently interviewed on the topic of food access on Radio Times (Moss-Coane, 2011). She recounted that half of the farm has been a community garden for the past 30 years, and the other half was vacant until about five years ago, when the state EPA and the Water Department contracted the farmers to manage the property. Although soil quality varies across the city, the Mill Cree site did not need remediation. Jade noted that, although an establishment with a wide, quality selection of fresh fruits and vegetables is missing in the neighborhood, there are places that sell fresh produce. A grocery store used to operate nearby, but it closed two years ago. Certain corner stores offer some produce. Fruit trucks offer fresh fruit, but it is not always of the best quality, and sell produce during daytime hours. Jade refers to the historical context of land "tied up in red tape of redevelopment" in the policies of the 2000s discussed in the Background section. She references the Take Back the Vacant Land Campaign (Campaign to Take Back Vacant Land, 2011), which looks to end the government's

\$20 million per year cost of managing vacant land by establishing ownership of land to allow gardening on vacant property.

Mill Creek emphasizes exposure and education as well as a point of access for local, chemically free food to eat. Jade wants to correct the myth that kids don't like vegetables, and notes that each year thousands of kids visit the farm. Mill Creek farm's paradigm holds that people should be able to produce for themselves, but that the harvest should be shared across the community. Home gardeners that have too much can donate surplus garden harvest. Nonprofits across the city share access to growing materials and plant starts and composting resources to amend soil. Organizations like City Harvest, in which inmates grow starts in prison to distribute to gardens, or the Philadelphia Orchard Project connect efforts.

While unable to attend one of Mill Creek Farm's monthly work-days, I did visit SHARE, Inc., an acronym for Self Help and Resource Exchange, a non-profit corporation located at 29th and W. Hunting Park Avenue in North Philadelphia. The organization's website describes an opportunity to buy affordable food in exchange for volunteer time or community service. The website explains that for each package of food purchased, the buyer is asked to serve two hours of good deed time to SHARE or other community institutions or the buyer's neighborhood. The program is open to anyone, with the inclusive declaration: "Because it is for everyone, it can help break down barriers that divide people: barriers like race, religion, social and economic classes, gender, and age. When we break down barriers, we can begin to see each other as real people, and begin to build community and neighborhoods" (SHARE, 2011)

Customers can pick up their orders from the warehouse or from a Host on a distribution day. Hosts coordinate pickup from the warehouse and distribution to their neighborhood or community, but they do not deliver food to buyers. For buyers, savings are significant: packages

are about half the price of the same items at a grocery store, and the food is never donated, government surplus, or salvage.

Menu and order forms are available online and catalogue the types and quantities of food available. Fresh vegetables and fruit and many types of meats and processed foods are available. Menus are updated monthly, and feature images of fruits and vegetables at the top of the page. Packages include “Value Package” and “Non-Pork Package” (\$20 each) which contain four types of meat, eggs, and fresh vegetables and fruit. The “Produce Package” (\$20) contains fresh vegetables, fresh fruit, and eggs. The “Fruit Package” (\$15) may include Apples, Pears, Banana, Grapes, Kiwi, Oranges, Tangerines, Melons, Pineapple, and Frozen fruit. The “Farm to Families Junior” (\$10) package may include based on season asparagus, rhubarb, peas, scallions, cabbage, spinach, onions, potatoes, and Swiss chard. The “Farm to Families Grande” (\$15) package may include the same items based on season. Boneless Chicken Breast fillets (\$13) and Sweet Potato Fries (\$5.50) are also available. Interestingly, the produce package is equally as expensive as the meat package.

SHARE is paid to warehouse and distribute federally provided food, and maintains a garden that produces organic vegetables. When visiting in early March, I entered the 137,000 square foot warehouse through the loading dock. I signed in and met Bob Hacker*, who runs the farm. My first task was checking bags prepared by a previous volunteer group before distribution to a senior community in Montgomery County. Each bag contained 2 lbs of macaroni 2 lbs of beans, 2 boxes of cereal, 2 gallons of juice, 2 cans of sweet corn, 2 cans of chicken, 1 can of each of mixed fruit, apple sauce, peas, and green beans, and finally 2 boxes of milk. The packaging was very specific for the cardboard boxes to hold the 30 lbs of goods

* Pseudonym, as I was not given explicit permission to quote in the paper.

without damage, and we had to re-do the previous volunteer's work. Steve, an employee instructing me, said, "every day is like groundhog day here, we have to explain then explain again." Aside from Steve and myself, two other volunteers and a group of about 12 students from the all-girls Agnes Irwin School reordered the boxes and stacked them on pallets at the end of the rolling belt.

After serving my time in the packaging effort, Bob gave me a tour of SHARE's makeshift hothouse and high tunnel. The hothouse was a tiny room filled with lighted shelves of budding plants from floor to ceiling. A space heater occupied the center of the bathroom-sized space, and some light came through the plexiglass roof. Bob tallied the cost of the lighting and heat panels under each shelf, summing the total price of the room upwards of \$1,000. Yet, he explained that it was cheaper to heat this small room than to have another facility house the plants. To buy from greenhouses was out of the question because they catered to a residential market that did not demand plants until later in the season. Naturally, Bob wanted to be able to offer his produce to customers as soon as possible.

Outside, a large high tunnel stood across the parking lot from the warehouse. The greenhouse-type structure is about 16 feet tall and 24 feet long with greenhouse plastic stretched over the roof that rolls up on the sides. Inside, four raised beds contained chard and spinach and kale, which had been heavily harvested recently. The garden sells its organic produce at the price of conventional food, which Bob matches from the website of the local Fresh Grocer at 53rd and Chew Avenue. He sold on Saturdays to people who came to pick up their food packages.

Bob swears that he could distinguish organic from non-organic produce by taste alone. He gives produce to anyone who comes to work, "even rich white ladies," because he wants to

get people excited about growing food, especially people who have never tasted or picked or seen what spinach grows on. However, Bob also noted that, “the problem is, you are introducing them to this, what if they never pick one again? What if they never eat fresh food again?” He described the farming initiative, horticultural, nonprofit crowd as overwhelmingly white, especially their leadership, while the communities they serve are predominantly black. Volunteers tended to be white, and he speculated that people in the neighborhood just didn’t have the time. Bob complained, “it’s so hard to have a diverse work force. We are hiring now, and all the applicants for the position are white. How to connect with the community is a huge challenge.”

Perceptions at the personal level show social tension surrounding disparities in health and food access seen in Figure 1. Bob’s effort to educate the community is well intentioned and, as government and policy efforts demonstrate, education is certainly a piece of improving health in Philadelphia. Yet, an effort to reach older Philadelphians may also serve the interests of increasing fresh produce across the city. Vitiello and Nairn’s (2008) work, discussed below, shows that urban gardening was much more prevalent twenty years ago than today, despite its current popularity. Older Philadelphians experienced the city at the height of community gardening production, meaning they should be included in efforts to reinvigorate public interest and accessibility of fresh produce.

Background: Urban Gardening in Philadelphia

Domenic Vitiello and Michael Nairn of the Penn Planning and Urban Studies Departments of the University of Pennsylvania reported on the status of community gardening in 2008. They found an incredible amount of produce coming from community gardens directly to

people in need across the city. Their findings showed that community gardeners produced and distributed more food directly to hungry people than all of the urban farms and farmers market combined. Vitiello and Nairn's (2008:5) working definition of community garden was a place "where people from more than one household garden on land they do not own".

Vitiello and Nairn (2008) reveal that, despite the publicity for urban agriculture, Philadelphia used to have at least double the number of community garden sites across the city. Their analysis describes a gardening boom in Philadelphia following the decline of industry and formal economy in the 1970s. Properties became vacant when workers left the city after losing their jobs (Street, 2002), and soon there were between 500 and 600 gardens across the city (Vitiello and Nairn, 2009). Key to the support and coordination of gardening on vacant lands were the Pennsylvania Horticultural Society's Philadelphia Green program and the Redevelopment Authority of the City of Philadelphia. Shockingly, in 1996, the USDA stopped funding urban gardening programs (Kameshwari, 1999), and this effectively ended support from Penn State's Urban Gardening Program. The Horticultural Society backed out support for communities as well, instead consolidating their efforts to a few large gardens (Vitiello and Nairn, 2008).

Five years later, Major Street's Neighborhood Revitalization Initiative further discouraged gardening by clearing vacant lands to attract developers (The City of Philadelphia, 2001). Although housing prices were increasing, the effect on many Revitalization Initiative properties sent the small-scale farmers away and ruined the garden, only to have the developer fail to make payments or actually build on the site. The most detrimental impact of garden destruction occurred in North, South, and West Philadelphia. Vitiello and Nairn (2008:36-37) highlight this historical backdrop to current food access problems:

NTI destroyed many gardens, especially in North Philadelphia. [. . .] Beyond NTI's goal of promoting real estate development as opposed to land uses that do not pay taxes, displacing gardeners was made easier by the fact that most community gardens are listed on city property databases, including the Board of Revision of Taxes, as "vacant land" and often look little different from nearby vacant lots in the winter or on aerial images.

In Vitiello and Nairn's (2008) analysis, government policies responding to increasing property values and looking to stimulate development proved detrimental to the health of the communities in the long term. Relying on surveillance imaging and data, decisions were made without consulting needs of the neighborhoods affected (Vitiello and Nairn, 2008). While communities had become self-reliant by growing vegetables through the 1970s, the absence of fresh vegetables after the gardens were wiped out in the 2000s must have decreased access to healthy food. The perspective revealed in Harvest Report is a reminder of the historical precedent of community gardening in the city (Vitiello and Nairn, 2008). This history needs to be remembered as urban gardening increases in popularity again (Laskawy, 2010).

Concluding Remarks

This project has been an effort to examine interrelated fields of causality in the case of T2D. Issues of food access and health attract significant public and private attention. With increasing rates of chronic diseases across America, more medical attention is paid to long-term care and lifestyle of individuals. Interest in nutrition comes from the increasing obesity rates across the country (Barnes, 2005). Recently published studies reveal the difficulties of measuring the impact of food access on health (Lee, 2012); (Sturm, 2012). Helen Lee's (2012) work for the Public Policy Institute of California was published this February. In this article, Lee disputed the food desert idea, indicating, based on her findings that across the country poor

neighborhoods had twice as many fast food locations, but also had almost twice as many grocery stores and supermarkets (Kolata, 2012). Research on health outcomes for T2D and other chronic diseases are complicated by the many social, economic, and geographic factors that impact disease rate. The work presented above explored only a few of the many determinants of disease, including geography of fresh produce versus fast food, policy initiatives, and community gardening, at the scale of the City of Philadelphia. Further study would look at other important variables that may correlate with diabetes burdens in the city, such as the extent of parks or recreational space in neighborhoods, area safety statistics, means of transportation, and income and property characteristics. While national findings about health and food access are helpful, solutions to reducing disease burdens must be made within the local context of neighborhoods and the historical-political policy context of specific cities.

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