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Institutional food as a lever for improving health in cities: the case of New York City



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ABSTRACT

Objectives: To describe and examine the factors that most facilitate and impede the provision of healthy foods in a complex institutional food system.

Study design: Comparative case study of three institutional food settings in New York City.

Methods: Document review and interviews with relevant city government staff.

Results: Factors that facilitate and impede the provision of healthy food vary across institutional food settings, and particularly between centralized and decentralized settings. Generally pro-health factors include centralized purchasing and the ability to work with vendors to formulate items to improve nutritional quality, though decentralized purchasing may offer more flexibility to work with vendors offering healthier food items and to respond to consumer preferences. Factors most often working against health in more centralized systems include financing constraints that are unique to particular settings. In less centralized systems, factors working against health may include both financing constraints and factors that are site-specific, relating to preparation and equipment.

Conclusions: Making changes to institutional food systems that will meaningfully influence public health requires a detailed understanding of the diverse systems supporting and shaping public food provision. Ultimately, the cases in this study demonstrate that agency staff typically would like to provide healthier foods, but often feel limited by the competing objectives of affordability and consumer preference. Their ability to address these competing objectives is shaped by a combination of both forces external to the institution, like nutritional regulations, and internal forces, like an agency's structure, and motivation on the part of staff.

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Introduction

A fundamental change to institutional food in New York City came about in 2008 when the municipal government created the New York City Food Standards.¹ The purpose of the Food

Standards is to increase healthy food and beverage options served by city agencies in places like schools, child care centers, senior centers, jails, and afterschool programs. Specifically, the standards seek to eliminate trans fat, to reduce fat (especially saturated), sodium and sugar, and to increase the availability of fiber-rich foods, like whole grains, vegetables,

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and fruit. They also suggest that ‘when practicable’ agencies should consider the sustainability implications of foods they serve. Agencies are held accountable when it comes to the Food Standards by Local Law 52, which mandates annual reporting of data on many of the city’s food-related initiatives, including agency compliance with the Food Standards.²

The Food Standards are a major initiative in part because the reach of institutional food in New York City is so extensive, including approximately 270 million meals and snacks per year.^{3,4} In examining the dynamics of institutional food in New York, the authors take the health and, in particular, the nutritional well-being of eaters as the primary objective of interest. In this analysis, the authors thus examine the factors that most facilitate and impede the provision of healthier meals and snacks in a complex institutional food system, like the one currently operating in New York City. By ‘healthier’, the authors mean foods that are more in keeping with the Food Standards, which offer both meal component and nutrient guidelines based on the United States Dietary Guidelines for Americans, 2010 issued by the U.S. Department of Agriculture (USDA).⁵ However, it should be noted that while the Food Standards have placed much-needed emphasis on improving the nutritional quality of institutional food in public settings in New York City, they do not provide the only motivation for enhancing food quality. As the case studies that follow demonstrate, some city agencies are also required to comply with federal nutritional guidelines when providing food. Furthermore, greater popular attention to reducing diet-related disease in the United States has at times generated motivation and action towards improving food among both those who lead these agencies and organizations and those grassroots constituencies who are served in these settings.

Though interventions and literature on the topic of institutional food in cities tend to focus on school food,^{6–9} in this paper examples have been taken from the wider array of institutional settings serving food in New York. The authors focus on three settings that illustrate some of the diverse ways in which institutional food provision can function and move toward healthier food provision. These are: jails, schools, and senior centers. Based on collective experiences as researchers in this area, the authors see institutional food settings as seeking to address multiple objectives that range from managing program finances, meeting standards (food safety, meal provision, nutrition-related, etc.), and addressing consumer preferences to improving the health of eaters, improving the sustainability of food systems, and providing particular kinds of social experiences related to food. In this paper, the architecture of these three institutional food settings and the ways that city agencies work toward achieving these multiple objectives were examined.

Context

Though this paper focuses on largely nutrition-oriented steps that New York City agencies have taken toward healthier public food provision, it is important to recognize that these changes represent only one aspect of a global movement to address food insecurity. In what has been called ‘the new food equation,’ hunger and diet-related disease now coexist internationally against a backdrop of

shifting food prices, demands, production scenarios (influenced by climate change), and politics.⁸ Food security, which is a key facet of this equation, ‘exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life,’ according to the Food and Agricultural Organization of the United Nations (FAO).¹⁰ Thus, food security, with its dual focus on quantity and quality of food, remains a major concern in public health globally, with different features of food insecurity being more pressing in different locales and populations.^{11,12} In urban areas, for instance, shifts to support food security are often embedded amidst efforts to reduce negative environmental effects of food production and to localize food production.⁸

Action to address food insecurity in global cities requires attention from multiple sectors and players, and the publicly funded institutional food system—that is, major public institutions that in the course of fulfilling other functions also provide food (also called the ‘public sector food procurement’ system) has emerged as an area of particular promise.^{8,13} From the literature on food in schools, for instance, there is growing evidence that changes to institutional food systems in high, middle, and low-income countries can have an impact not only on public health goals like food security and nutrition, but also on educational attainment, and on the stimulation of local economies.^{14–17} In considering school feeding, Ashe and Sonnino characterize the unique opportunity that institutional food can offer for addressing food insecurity as having three primary characteristics: 1) these changes are ‘systemic’ and thus have the potential to motivate and influence other parts of the food system, 2) they are state-led, conferring reach and legitimacy, and 3) they target the disadvantaged who are at elevated risk of both hunger and diet-related disease.⁹

While the existence, scale, and accessibility of institutional food programs primarily address the hunger side of food insecurity, logically, it is the nutritional quality, cultural appropriateness,⁹ and palatability of the foods they produce that most directly target diet-related disease. As noted previously, this paper focuses on the diet-related disease aspects of food insecurity. However, it does so with a recognition of the social determinants of health¹⁸ and the social ecological model,¹⁹ and specifically the interactions between multiple levels—international, national, municipal, community, interpersonal, and intrapersonal—that shape food systems and what is offered and consumed in institutional food settings.²⁰ Given the importance of changes beyond those within the organizations and agencies described here, the authors are also interested in the ways that shifts in institutional food have, as Ashe and Sonnino wrote about school meals in the journal *Public Health Nutrition* in 2013, ‘the potential to catalyze the broader political and systemic changes needed to redress food insecurity beyond the intermediate term’.^{9(p1021)}

Methods

The three cases that are presented in this paper are based on data collected for a report commissioned by the New York City

Table 1 – Summary of key characteristics for featured institutional food settings.

Setting	Presence of Centralized Purchasing ^a	Number of Kitchens ^a	Number of Sites Serving Food ^a	Number of Meals Served Annually ^b	Presence of Specially Formulated Items ^a
Jails	Yes	Five kitchens	200 food-serving sites at 10 facilities	13.5 million	Yes
Public Schools	Yes	~1200 kitchens	Over 1700 schools	180 million	Yes
Publicly-funded Senior Centers	No	Many senior centers have a kitchen on-site	247 senior centers	7.4 million	No

^a Data gathered from interviews and other communications with city agency staff.
^b Data from the October 2012 Food Metrics report.³

Council, the city's legislative body, from the New York City Food Policy Center at Hunter College.² The report examined and described the city's publicly-funded institutional food landscape and involved both document review and interviews. Several types of document were reviewed for information about food in a range of institutional settings. These documents included city policies, reports, and other supporting materials; articles in the academic and popular press; and city agency websites. Additionally, relevant staff at all of the ten New York City agencies responsible for providing meals and snacks to New Yorkers through city programs were interviewed by phone, in person, or via email using a semi-structured interview tool that allowed us to gather information on a standardized but flexible array of topics. The semi-structured interview tool was organized according to what the authors saw as the fundamental components of institutional food in American cities: financing, menu planning, food procurement, food infrastructure, food preparation and serving, food labor, and food waste.

The documents described above were used to inform both the development of specific interview questions for each agency and the agency profiles that were the foundation of the report. Data from the interviews were then analyzed thematically to complete these profiles through an iterative process primarily involving three of the authors (ET, JW, and JP). Within-case analysis of the profiles, using each agency as a case, helped to identify dynamics that were unique to particular agencies, while cross-case analysis of the profiles, was used to help identify patterns across agencies; for instance, an examination of how the objectives described above might be prioritized under which circumstances. For the purposes of this paper, information gathered from the Department of Correction (DOC), the Department of Education (DOE), and the Department for the Aging (DFTA) was analyzed.

Results

In the sections below, these three different institutional food settings are described briefly. The authors discuss how health improvement has been pursued as an objective in these settings (both in conjunction with and beyond the city's Food Standards), what challenges these efforts have met, and what factors have facilitated moves toward healthier foods and food production. In particular, the authors are interested in the ways these settings balance and make trade-offs among

the objectives previously mentioned. Table 1 provides a summary of some of the key characteristics of foodservice in each of these settings.

Jails

The New York City Department of Correction's mission is to 'keep New York City communities safe by securely and safely detaining inmates and preparing them for successful community reentry after their release from jail'.²¹ DOC houses and feeds a daily jail population that fluctuates between 12,000 and 17,000 inmates.²² In 2012, the DOC served approximately 13.5 million meals, including not only meals for inmates but also one meal per shift for staff.³

Food production in the City's jail system is highly centralized. The same menu is served across virtually all of DOC's 200 food-serving sites at each meal on a 28-day cycle, and the meals are produced at only five different kitchens. Because of the large numbers of meals the system serves, vendors have been known to work with DOC to formulate items specifically for them. Once food is purchased, it is stored in three warehouses. The five DOC kitchens order food from these warehouses through a foodservice/catering management software system that closely tracks inventory and also helps to scale recipes to the inmate population on a given day.

DOC foodservice leaders have worked toward the production of healthier foods in a variety of ways. Fat fryers were eliminated from the kitchens in the late 1990s, and standardized recipes were phased in around 2000. Sugar-sweetened beverages and sugary foods have been phased out, and whole milk was replaced first with 2% fat milk and then with 1% fat milk. A current goal is to serve a heart-healthy menu for everyone eating within the system. This is further incentivized by the need to meet existing nutrition standards, like the New York City Food Standards and those of the federal USDA that provides some of the food served by DOC. Efforts to serve healthier food are challenged, however, by competing concerns like staying within the allocated budget and producing foods that inmates will eat. The last factor is critical both to supporting inmate health and reducing food waste.

In working to continually improve the healthfulness of foods served, the head of foodservice for DOC, who is a high-level official in the agency and a registered dietitian, constantly reviews the ingredients and the nutritional quality of foods, keeping an eye out for areas where changes can be

made to make the food healthier. Therapeutic diets that are prescribed by a physician to inmates with health problems are also provided. Currently the system is also seeking to expand its ability to offer vegan meals as they have sensed an increasing interest among inmates for this option.

The Jamaican patty, spiced meat and vegetables baked in pastry dough, provides an example of how health (and other factors) can be prioritized in the jail foodservice system in New York. The Jamaican patties are considered a 'treat for inmates', according to DOC staff, and they are also notoriously high in fat and sodium. In order to keep the typically unhealthy patties as an occasional feature of menus within the jail system, DOC staff worked with vendors to reformulate the Jamaican patties, creating a healthier (lower sodium and lower fat) and Food-Standard-compliant version that even diabetics eating one of the system's therapeutic diets can consume.

Schools

New York City runs the largest public school district in the United States, which educates more than one million students at 1700 schools. The NYC Department of Education's Office of School Food and Nutrition Services ("SchoolFood") oversees the production of about 180 million meals and snacks annually for youth up to age 18 typically.^a Of the 1700 public schools, about 1200 have their own kitchens in which they produce school meals. These kitchens have steamers and/or convection ovens, which allow them to take in raw produce and prepare many vegetable and fruit offerings from scratch. Other foods served from these kitchens are precooked and frozen. While SchoolFood is moving toward providing more minimally processed foods, items that are potentially hazardous if time and temperature are not carefully attended to (e.g., meats) can be prepared off-site in a more centralized environment with greater attention to food safety. Thus, these foods are typically purchased already cooked or processed.

Menus for New York City's many schools are planned centrally and foods used to prepare these menus are purchased centrally. However, as noted above, food is prepared at schools themselves rather than at a central kitchen. Because of the large number of students served by New York City's school food system and thus the large volume of food purchased, staff feel that they are generally able to get good prices on food, but delivery charges tend to be high, driving the prices up overall. One of the primary reasons for high delivery charges is that deliveries typically must be made between 8 am and 2 pm when staff are present to receive them. These are the most expensive times of day for delivery because of traffic, parking limitations, and fines.

This raises the question of funding for school food generally in the United States, which is largely financed by the federal (or national) government, but also draws on state and city sources, as well as funds from students themselves. The federal system for financing school food in the United States is

extremely complex.^b For the purposes of this discussion, what is most important to know is as follows. First, students can qualify for free, reduced price, or full price meals based on their family income, and the federal government offers reimbursement to school districts at different levels for each of these types of meals. Second, schools in which 60% or more of lunches are served at the free or reduced rate get a small addition to their per meal reimbursement. Third, to be reimbursed for school meals, school districts must meet meal and nutrition standards based on the USDA guidelines. Though historically many school districts have fallen short of these standards²³ and the healthfulness of the standards has sometimes been questioned, standards were recently raised and school districts appear to be making progress toward compliance²⁴; districts that can demonstrate such compliance receive a small increase in reimbursement rates. Finally, schools receive a credit for each lunch served and aggregated credits can be used to order USDA Foods, formerly known as surplus commodities or 'commodity foods'. Because many raw products available through USDA Foods are processed prior to use in schools through choices made at all levels of the system, these commodities have sometimes allowed for an infusion of preprocessed and less healthy foods into school districts,²³ though this may be changing. USDA Foods now makes a greater number of healthier products available at the federal level (e.g., quick-cook brown rice, whole grain pasta, apple sauce with no added sugar).²⁵ Taking full advantage of the available USDA Foods helps schools to keep costs lower. In Fiscal Year 2011–12, New York City spent about \$425 million on school meals, of which 76% was funded (reimbursed) by the federal government, 18% by city government and 6% by New York State government.²⁶

Menu development at SchoolFood thus seeks to achieve a delicate balance between 1) ensuring that available commodities are used to help keep costs manageable, 2) meeting both USDA and City Food Standards (and going beyond these standards when possible), and 3) providing foods that will be appealing to students in order to help increase participation numbers and thus funding, and reduce waste. Health is therefore pursued through compliance with local and national food standards, but also through efforts like a program that funds salad bars in any school that requests one (currently well over 1000 schools), and through experimentation with new methods to provide healthy, fresh foods that students will eat.

Senior centers

The New York City Department for the Aging (DFTA) receives federal, state, and city funds to carry out its mission, which is, 'to work for the empowerment, independence, dignity and quality of life of New York City's diverse older adults and for the support of their families through advocacy, education and the coordination and delivery of services'.²⁷ DFTA provides some direct services to seniors and also contracts with non-profits and community based organizations to execute the

^a NYC School Food is also contracted to provide foodservice at approximately 300 private schools and parochial schools providing religiously oriented education in New York City, in addition to serving the 1700 public schools.

^b For a detailed description of American school food financing, see Janet Poppendieck's *Free for All: Fixing School Food in America* published in 2010.

delivery of services including meal services and activities at senior centers, legal services, case management, home-delivered meals, home care, and transportation.²⁷

The 247 senior centers contracted by DFTA to support their mission are located throughout the five boroughs of New York City and serve approximately 7.4 million meals annually.³

DFTA operates a largely decentralized foodservice system emphasizing decision-making at a local level, often in the individual centers. Senior centers are responsible for their own food procurement and most prepare food on-site. They do have access, however, to three group purchasing options that allow them to use the purchasing power of other smaller public or non-profit food providers to reduce the cost of food and other goods and services.

Given the substantial local control of food-related decision-making at sites serving food to seniors, DFTA maintains a unique technical assistance and oversight mechanism that supports the health of consumers eating in this setting. The Nutrition Services Unit employs nine nutritionists, and is responsible for ensuring compliance with health and safety standards in the kitchens of DFTA-funded senior centers, as well as helping these sites to meet the City Food Standards. These nutritionists review menus and complete nutrient analysis of meals served at the 247 senior centers. Additionally, they provide extensive technical assistance on meal planning, recipe development and food purchasing. To assist programs in meeting the Food Standards, for instance, DFTA's Nutrition Services Unit has helped contractors identify products that comply and that are affordable, which the sites can then purchase. DFTA's nutritionists also provide on-site nutrition education workshops at each senior center annually.

DFTA and its senior centers are working to improve consumer nutrition and health through several other avenues as well. These include: 1) developing parameters for, and making available diabetic-friendly meals, 2) development of an online menu planning application and 3) encouraging local food procurement. The diabetic-friendly meals are currently being piloted at one senior center, and after efforts to maximize customer satisfaction have concluded, the Nutrition Services Unit hopes to expand the availability of these meals throughout the system (either as an option or as a guiding principle for all meals at a given site). To improve menu flexibility and encourage local purchasing, DFTA is developing an online menu planning application, which will include tools such as 'swappable items', nutrient analysis, seasonal food lists, and recipe sharing.

One challenge to systematically addressing health in a system like this one is the system's decentralized approach to foodservice. Vast differences in the quality of food at senior centers and in the satisfaction of consumers may exist even at neighboring senior centers. Local factors determining these differences might include the level of attention the center director places on food, the amount of operational funding devoted to food, the skills and knowledge of food preparation staff, the quality and functionality of the center's kitchen and its equipment, the involvement of consumers in the menu development process, and the financial contributions that consumers may voluntarily make to help pay for senior center meals. At the same time, decentralized systems have the advantage of flexibility; in the case of senior centers in New

York, which often attract concentrations of seniors with particular racial ethnic backgrounds, the ability to cater to a group's specific tastes or needs is a notable benefit.

Discussion

The three settings discussed above illustrate the diversity of the types of systems and decisions in institutional food, and the challenges that institutional foodservice directors face in balancing health-related goals with limited budgets and consumer satisfaction. These descriptions suggest that these goals take on different levels of importance across these settings.

For instance, there are two major advantages of a system serving many meals that conducts purchasing centrally. First, these systems may be able to negotiate better food prices due to volume, and second, these systems may have the ability to have products specially formulated to meet nutrition standards and consumer tastes writ large, while also being responsive to cost pressures. This is the case for the Departments of Education and Correction, and these factors strengthen these agencies' ability to serve healthier foods that meet nutritional standards under existing cost constraints. However, one implication of the story of the Jamaican patty is that, whilst the system was able to produce a healthier version it was not able to develop a version of the patties that could be produced on site, an approach that might offer fresher products. This would likely have required more labor, expertise, or equipment than the system can afford, which is limited and highly controlled in correctional settings. Thus in the jail setting, health and consumer satisfaction can be emphasized, but only to the extent that they do not challenge existing budgets. In the jails in the United States, it is also worth noting that the severe limitations on funding and the politically difficult nature of arguing for more funding for prison food, work against health. Privatization of prison foodservice to reduce the amount spent per meal is increasingly common nationally,²⁸ and is likely to add to the difficulty of providing more foods that are considered healthy.

For school foodservice systems, centralized purchasing, reduced food prices, negotiating power, and the potential for specially formulated healthier items are factors that help foodservice directors move toward healthier fare. However, these generally pro-health factors are complicated by other dynamics. First, meeting the federal and city nutritional guidelines may not always work in favor of health, as these systems sometimes result in the use of more processed foods. The need to use commodity foods to keep budgets manageable can influence menus in ways that may compromise health, though it does not have to. Second, because of the way school food is financed, being responsive to student preferences becomes a central goal. This can make it difficult to provide healthy food when students lack education about nutrition, when advertising-influenced taste preferences veer toward salt, fat, and sugar, and when students can leave the school to purchase food elsewhere. Finally, in dense urban areas like New York, high delivery charges may reduce some of the positive impact that large scale purchasing has on

school food budgets and may reduce the ability to purchase more expensive but healthier foods.

For the decentralized system of senior centers in New York City, the top pro-health dynamic is supporting centers and their kitchens in meeting standards and conducting nutrition education through on-site technical assistance. Factors that work against health in this system include the inability to benefit from economies of scale enabled by centralized purchasing (though available group purchasing options help to address this obstacle) and the challenges of training foodservice staff and providing them with appropriate, up-to-date kitchen equipment when preparation is decentralized. On the positive side, however, decentralized purchasing and preparation may offer more flexibility to work with vendors who are offering healthier food items and more flexibility to train staff to prepare fresh foods that meet the food needs and desires of a particular center's consumers.

Conclusion

Factors that facilitate and impede the provision of healthy food vary across institutional food settings. Factors that generally support health by facilitating compliance with the city Food Standards and other nutritional regulations include centralized purchasing and the ability to work with vendors to specially formulate items. However, considering health as a factor that goes beyond compliance with nutritional regulations, decentralized purchasing may offer more flexibility to work with vendors offering healthier food items and to purchase healthy and fresh local items available at a smaller scale. The factors that most often work against improving the quality of food in more centralized systems are dynamics affecting financing that are unique to particular settings. For jails, these dynamics include the politically difficult case for increased food funding when this funding could theoretically be used for populations considered 'more deserving'. For schools, the need and motivation to appeal to student palates and to work with commodity foods have implications for financing that in turn affect health. In less centralized systems, factors working against health may include both financing-related dynamics (like food price issues associated with decentralized purchasing at senior centers) and factors that are site-specific, relating to preparation and equipment.

Making changes to institutional food systems that will meaningfully influence public health requires a detailed understanding of the diverse systems supporting and shaping public food provision. For instance, the mechanisms through which financing works and the pressures on budgets are often unique to particular institutional food settings, as the case of the Department of Education in particular illustrates. Ultimately, these study cases demonstrate that agency staff typically would like to provide healthier foods, but often feel limited by the competing objectives of affordability and consumer preference. Their ability to address these competing objectives is shaped by a combination of both external forces, like the Food Standards (and other nutritional regulations), and internal forces, like an agency's structure and motivation on the part of staff.

Smaller-scale interventions into institutional food that can further support agency staff in these efforts include opportunities for group purchasing arrangements that improve the affordability and availability of healthy foods, opportunities for staff training on healthy purchasing and food preparation, and health education and food tastings for eaters and staff to improve perceptions of and familiarity with healthier foods and to reduce food waste. Larger-scale approaches to improving institutional food, like substantially increased investments per meal, however, require shifting the thinking of citizens, policymakers, and others who shape foodservice regulations and financing in these settings. Importantly, this may involve reconceptualizing healthy foodservice as a critical component of achieving not only institutional but societal goals (e.g., education and learning, environmental responsibility, economic development); that is, considering healthy institutional food to be 'multifunctional,' a vehicle for addressing not only hunger and diet-related disease, but for achieving multiple goals at multiple levels.^{9(p1023)} Finally, it is worth recognizing that the viability of New York's existing approach to institutional food is in large part shaped by politics. The degree to which the new Mayoral administration in New York City will make food security a priority remains to be seen. Moving toward the notion of institutional food as multifunctional might be particularly advantageous under this new administration, which—like many governments internationally—has emphasized its interest in addressing the pressing problem of economic inequality.

Author statements

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Competing interests

None declared.

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