

Developing and Implementing Health and Sustainability Guidelines for Institutional Food Service^{1–3}

Joel Kimmons,^{4*} Sonya Jones,⁵ Holly H. McPeak,⁶ and Brian Bowden⁷

⁴Division of Nutrition, Physical Activity, and Obesity, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, Atlanta, GA; ⁵Center for Research in Nutrition and Health Disparities and Department of Health Promotion, Education, and Behavior, Arnold School of Public Health, University of South Carolina, Columbia, SC; ⁶Office of Disease Prevention and Health Promotion, Office of the Assistant Secretary for Health, U.S. Department of Health and Human Services, Rockville, MD; and ⁷Office of the Associate Director for Policy, Centers for Disease Control and Prevention, Atlanta, GA

ABSTRACT

Health and sustainability guidelines for institutional food service are directed at improving dietary intake and increasing the ecological benefits of the food system. The development and implementation of institutional food service guidelines, such as the Health and Human Services (HHS) and General Services Administration (GSA) Health and Sustainability Guidelines for Federal Concessions and Vending Operations (HHS/GSA Guidelines), have the potential to improve the health and sustainability of the food system. Institutional guidelines assist staff, managers, and vendors in aligning the food environment at food service venues with healthier and more sustainable choices and practices. Guideline specifics and their effective implementation depend on the size, culture, nature, and management structure of an institution and the individuals affected. They may be applied anywhere food is sold, served, or consumed. Changing institutional food service practice requires comprehensive analysis, engagement, and education of all relevant stakeholders including institutional management, members of the food supply chain, and customers. Current examples of food service guidelines presented here are the HHS and GSA Health and Sustainability Guidelines for Federal Concessions and Vending Operations, which translate evidence-based recommendations on health and sustainability into institutional food service practices and are currently being implemented at the federal level. Developing and implementing guidelines has the potential to improve long-term population health outcomes while simultaneously benefitting the food system. Nutritionists, public health practitioners, and researchers should consider working with institutions to develop, implement, and evaluate food service guidelines for health and sustainability. *Adv. Nutr.* 3: 337–342, 2012.

Introduction

Improving the nation's health status and protecting the environment require a population shift toward a diet consistent with the Dietary Guidelines for Americans 2010 (DGA 2010)⁷ and

composed of foods produced in an ecologically responsible and sustainable manner (1–3). For most Americans, the current food environment—the home, retail, processing, production, and farming systems to obtain food—does not easily support consuming a diet consistent with the DGA 2010 (4–6). Changing the food environment by increasing the availability and variety of healthy foods has been successful in positively modifying dietary choices in some studies (7,8). The work herein is encouraged by the theory that changing the food environment is a more promising strategy to shift dietary patterns significantly than are interventions targeted toward individuals (9).

Interventions to change the food environment, often through policy changes, increased during the past decade. For example, U.S. Congress and state legislatures have taken a variety of approaches to improve school food environments; federal, state, and local administrative agencies have developed guidelines about which foods can be offered

¹ Published as a supplement to *Advances in Nutrition*. Presented as part of the symposium entitled “Improving the Food Environment at Worksites and Schools through Sustainable and Healthy Food Procurement and Farm to Institution Strategies” given at the Experimental Biology 2011 meeting, April 9, 2011, in Washington, DC. The symposium was sponsored by Community and Public Health Nutrition. The symposium was chaired by Joel Kimmons and Arlin Wasserman. Guest Editor for this symposium publication was Gail Feenstra. Guest Editor disclosure: Gail Feenstra had no conflicts to disclose.

² CDC disclaimer: The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

³ Author disclosures: J. Kimmons, S. Jones, H.H. McPeak, and B. Bowden, no conflicts of interest.

⁷ Abbreviations used: DGA 2010, Dietary Guidelines for Americans 2010; GSA, General Services Administration; HHS, Health and Human Services; HHS/GSA Guidelines, Health and Sustainability Guidelines for Federal Concessions and Vending Operations.

* To whom correspondence should be addressed. E-mail: jkimmons@cdc.gov.

through their food-related programs; and court cases have decided how food can be produced and marketed (10,11). These interventions have been largely directed at improving individuals' dietary intake but have not always considered the broader ecologic benefits that result from changing the population's diet. Recently, institutional food-service guidelines approaching health and sustainability from an ecologic perspective have been developed and implemented at universities (12,13), businesses (14), cities (15), counties (16), states (17,18), and federal agencies (19).

This article summarizes the 2011 Experimental Biology conference proceedings that reported on the development of institutional food service guidelines for improving health and sustainability. An overview of the current status of knowledge on such guidelines is described. We specifically address the relevance of 1) development, 2) stakeholder engagement, 3) monitoring and evaluation, and 4) development of the Health and Human Services (HHS) and General Services Administration (GSA) Health and Sustainability Guidelines for Federal Concessions and Vending Operations (HHS/GSA Guidelines) (19).

Current status of knowledge

Guideline development

Institutional settings appropriate for guidelines include, but are not limited to, worksites, hospitals, child care centers, school systems, colleges, universities, prisons, assisted living facilities, and community or faith-based organizations (20). Potential target consumers include all persons with access to these institutions.

The size, culture, nature, and management structure of an institution will instruct how specific standards for health and sustainability guidelines are developed and implemented (20). Organizations with a mission closely aligned to health and sustainability can adopt and implement guidelines with ease, whereas others may have to demonstrate how improved employee or client health can align with organizational values before developing guidelines. Organizations with centralized management can use a top-down approach to guideline development; however, more decentralized institutions will need to engage stakeholders at the building or food-service level including, for example, work site wellness leaders, building managers, vendors, and potential customers.

When developing, implementing, and promoting health and sustainability guidelines, consideration needs to be given to institutional and stakeholder diversity and other internal and external realities, such as the business case, economic situations, societal needs, cultural acceptability, environmental issues, and overall sustainability. Therefore, guideline language will vary in stringency, ranging from formal policies requiring strict adherence to guidelines through established contractual agreements and from requirements that a percentage of the foods offered align with guidelines to a range of more voluntary levels. The specifics of an institution's food service also influence how guidelines are developed and implemented. Institutions where individuals have

limited food choices, such as prisons, may benefit from different approaches than worksites where employees can choose to bring their food, eat at on-site cafeterias or from vending machines, or leave the workplace to consume food off site.

Guided by the evidence for successfully changing dietary practices, guidelines should include strategies for increasing access to healthy foods in cafeterias and vending machines, menu labeling, pricing strategies, marketing campaigns, and organizational support (7,8,21–24). A basic approach to determining dietary standards is to adapt or adopt a model set of scientifically based guidelines such as the HHS/GSA Guidelines. Emerging evidence from behavioral economics encourages the use of choice architecture to influence food choices. Incorporating choice architecture into guidelines may include using default healthy options (e.g., sandwiches come with salads rather than chips), payment strategies (e.g., cookies can be purchased only with cash), and organization or placement (e.g., making healthiest foods most accessible or locating only healthy snacks in the checkout line) (25,26). Guidelines can also include strategies to increase on-site access because evidence suggests that it may increase fruit and vegetable consumption (27,28). Strategies include hosting farmers markets or community-supported agriculture, chef demonstrations, and food tastings, which tend to garner support from employees, patients, and visitors while tying institutions to local communities (28–32). Comprehensive approaches using multicomponent strategies have proven to be the most successful at benefiting health outcomes (33).

Sustainability aspects of guidelines focus on sourcing food in a manner in which production, processing, distribution, consumption, and related practices are integrated and regenerate rather than degrade natural resources, are socially just and accessible, and support the development of local communities and economies (34). Sustainability guidelines include standards on local or regional purchasing and production methods such as USDA organic or other sustainable certification. The cleaning materials, packaging, environmentally friendly serving ware, energy efficiency of machinery, energy use of the facilities, toxin production, social equity, and overall environmental impact of the food service facilities in an institution may all be considered in sustainability guidelines (35,36).

Stakeholder engagement

Changing an institution's food service practices to be consistent with health and sustainability guidelines will most often require a comprehensive analysis, engagement, and education of relevant stakeholders. Stakeholders include producers, suppliers, managers, contracting officers, vendors, dietitians, employees, and consumers and may represent the local community or state- and national-level organizations. Engagement with stakeholders should inform the content of guidelines and the nature of implementation.

Health and sustainability benefits and vendor profitability are maximized when the largest overall population is

reached. Guidelines can assist food service in reaching all accessible populations by ensuring that healthy foods are accessible at all times, such as providing healthy vending for late-night personnel when on-site cafeterias usually are closed.

The gradual implementation of guidelines can be a model for success. For example, contractors need time to organize channels for procuring food to align their offerings with guidelines, and customers need time to become familiar with new menu options and food service changes (20). Incremental approaches combining environmental, educational, and communication strategies are consistent with behavior change theories, such as the transtheoretical model, and assist in changing dietary habits (1,37).

Obtaining commitment and support from stakeholders requires raising awareness by communicating the benefits, including the business case, of health and sustainability guidelines (24). Communication should raise awareness that institutions often operate food service both to generate revenue and to make food readily available; food service is an integral business component and economic driver for many institutions. For example, the majority of meals that hospitals serve in cafeterias and catering operations are not to patients (38,39).

Management support for guidelines is essential for effective implementation. To obtain management support, it is important to understand which issues, whether economic, personnel, general systems, or public health, are most pertinent to the manager and be prepared to present rationale for these issues (24,37,40). For instance, to explain the economic rationale, one can point to evidence stating that comprehensive wellness programs, including environmental approaches that increase healthy food and physical activity behaviors and tobacco cessation, have a return on investment of approximately \$2–\$3 for every dollar spent (41). Further, it is possible for institutions to maintain or increase sales by offering healthier foods (8,22,42).

Communicating the economic, social, and environmental system benefits to management and employees builds support, commitment, understanding, and long-term sustainability (24). It may be useful to demonstrate the general connections between diet, physical activity, tobacco use, and other lifestyle behaviors influencing individual health outcomes and then extending these influences to families, communities, economies, and the environment (24,43,44). For example, guidelines can support local communities by supporting local food production, thus putting more financial resources in the local economy. In turn, these same community members may spend their capital at other local businesses and employ others in the community (32,43). This specific economic effect is known as the economic multiplier effect and is recognized as a tool to build local economic resilience (45).

Personnel are the primary investments made by most businesses, and employee health, morale, and productivity ultimately contribute to the economic bottom line of businesses. Although health outcomes related to diet tend to

be long term and involve many factors, it is well demonstrated that comprehensive workplace health promotion programs, ideally including components aimed at improving nutrition, can improve employee health, mitigate health care costs, reduce absenteeism, and improve worker productivity and morale (40,46,47). Morale and productivity are immediate outcomes concerning management, both of which are affected by diet in the short and long term (48). Changing the nutrition environment in particular also has implications for occupational safety, such as reducing the chance of workplace accidents caused by fatigue and lack of dexterity (49). It is possible that negative morale issues could arise due to restrictions in the availability of foods with lower nutritional value, although no evidence has been found to support this assertion, and it is generally accepted that employee or customer feedback is an important part of any program (37).

The general recognition of corporate and social responsibility is growing; institutions recognize community identity as a powerful marketing tool, business driver, and employee recruitment tool. Such public-private partnerships can become foundations for collaboration, cooperation, and community-based problem solving (43,50). These positive and interactive relationships between institutions and local communities build social capital, in turn promoting individual and public health goals of support, social trust, information, and membership (51).

Monitoring and evaluation of food service guidelines

Monitoring and evaluation are integral aspects of guideline development and sustainability, ideally designed to provide appropriate self-correcting feedback and evidence on effectiveness (20,37). In the case of health and sustainability guidelines, monitoring and evaluation ideally would demonstrate that the intent of guidelines (improved human and environmental health) is attained through the implementation process. Available resources and evaluation needs determine the depth of the evaluation process. Evaluating intermediate points to improve environmental and human health, such as improved dietary intake or reduced waste production, may be more feasible for outcome evaluation. Process evaluation that captures the methods and resources used during guideline development and implementation can provide qualitative feedback to management that helps maintain support.

Collection of detailed quantitative information during the implementation phase includes baseline data on the foods being prepared, served, and purchased and the ability to translate guidelines into requests for contractual service, such as which aspects of the guideline were added, the number of vendors bidding on these requests, the level at which vendors commit to meeting guidelines, and information on the ability to shift current contractual practices to align with guidelines. Once a contract is awarded and guidelines are in place, evaluation may include revenue changes, foods offered and purchased, and customer and vendor feedback. These data can be required as part of the contractual process

and gathered largely from sales and purchasing information. Specific nutrient-level information may also be requested from a vendor or calculated using nutritional analysis software. Specifics on dietary intake can be collected from individual food consumers, although this method is cumbersome and requires sophistication in both the collection of dietary information and analysis of data. Alternately, overall sales of healthy food items, as a percentage of total sales, can be calculated. Trend data over time may also be provided. Qualitative feedback from stakeholders about the guidelines may provide valuable information on how to adjust guidelines for maximum impact and sustainability. For example, providing informational materials that explain why changes have been made and asking for input involves and empowers customers in the process of change.

HHS/GSA Guidelines

The U.S. federal government recently embarked on an initiative to assist its employees in making healthier food and beverage choices and promoting a sustainable food system. These efforts are part of the federal government's commitment to promoting sustainable systems that protect the American people, the planet, and economic vitality as is demonstrated in executive orders signed by Presidents Bush (52) and Obama (53) and numerous initiatives throughout the federal government. As the largest employer in the country (54), the federal government has the potential to make significant impacts on the food system. Therefore, GSA and HHS created guidelines to increase healthy and sustainable food and beverage options and operations at federal workplaces. These guidelines help shape a part of the food system by providing an overall standard or general baseline for vendors of all sizes and types to provide healthy choices as a default. As of March 2011, new HHS- and GSA-managed food service contracts and vending operations incorporate these guidelines, which can also be applied at on-site and off-site conferences, meetings, and events. Following is a brief summary of the approach that was taken to develop the HHS/GSA Guidelines and the resulting standards.

Nutrition guidelines. The HHS/GSA Guidelines' nutritional food and beverage standards for meal items, meals, snacks, and beverages are based on the DGA 2010 and were guided by FDA food regulations and the Institute of Medicine's Dietary Reference Intakes (6). The DGA 2010 provide general dietary advice and general food group recommendations rather than specific meal, snack, or beverage criteria for group feeding. Therefore, the HHS/GSA Guidelines recommend nutrition standards that construct a food environment in which food offerings in cafeterias and vending machines are more likely to result in consumption patterns that align with DGA 2010. The HHS/GSA Guidelines were not designed to limit food choices. Food or snack items that have lower nutritional value, yet have a significant customer demand base, are not restricted from food service. Rather, the HHS/GSA Guidelines were designed to ensure that healthier choices are easy, convenient, and ideally lower cost.

The HHS/GSA Guidelines primarily focus on food and not the nutrients in food to promote healthier choices. However, reductions in sodium and the elimination of partially hydrogenated vegetable oils, unless the label or other documentation indicates 0 g *trans* fat per serving, are overall recommendations because of their public health significance and the premise that the most effective method of decreasing their consumption is during food production and processing. The HHS/GSA Guidelines also recommend menu labeling both in accordance with FDA policy and to highlight the sustainability of the operations (55).

The HHS/GSA Guidelines recommend that food service operations serve a variety of fruits, especially seasonal ones, without added sugars and sweeteners, and serve vegetables without added saturated or *trans* fats. Whole-grain products must be an option when cereal grains are offered. Dairy products must be limited to 2% fat or less, excluding cheeses. Entrée selections should include lean meat, poultry, seafood, or low-fat vegetarian entrées, with vegetarian protein entrées available at least twice per week. The HHS/GSA Guidelines also recommend fewer deep-fried options, more offerings of half-sized portions, default sides of vegetables or fruit, price adjustments to incentivize healthier options, and low-fat desserts with fewer added sweeteners. They also recommend that at least half of available beverage choices (other than 100% juice and unsweetened milk) contain ≤ 40 kcal/serving (56), and if juice is offered, it must be 100% juice with no added caloric sweeteners. The serving size of sweetened beverages is limited to ≥ 12 oz. Drinking water, preferably chilled tap, must be offered for free at all meal services.

Sustainability guidelines. The HHS/GSA Guidelines address sustainability through general operational issues, including recycling, composting, reusing, and green purchasing and cleaning practices. Sustainability standards include the use of integrated pest-management practices, green pest control, and single-service items that are compostable or bio-based (57). Food-related sustainability standards recommend the use of organically (58), locally (59), or documented sustainably grown products and processes (e.g., integrated pest management, pesticide free, other labeling programs) (60), seasonal fruits and vegetables, labeling of products to demonstrate sustainable items, and ethical and environmentally sensitive animal-product sourcing. Tap water should be promoted over bottled water and incentives provided for the use of reusable beverage containers.

HHS/GSA Guidelines recommend that signage or other informational programs be used to communicate to staff the ecologically sound, economically viable, and socially responsible values of these practices. For locally grown foods, information should identify the farms, their locations, and the sustainable practices used.

Implementation of Guidelines. The design of the HHS/GSA Guidelines allows them to be used broadly with the ability to be adapted to specific settings or groups, including

state and local governments, private organizations, and businesses. For instance, the State of California is using a version of the HHS/GSA Guidelines to construct food environment policies for state facilities (18).

The HHS/GSA Guidelines are flexible and responsive to maximizing health, sustainability, and overall stakeholder commitment (37). Over time, they may need to be modified because of implementation issues, access to and availability of foods, customer acceptance, cost, and nutritional issues. Because the HHS/GSA Guidelines are not intended to limit food choices, their approach may not satisfy those who believe that addressing diet-related health concerns requires strict dietary restriction at the policy level (6). The utility of the HHS/GSA Guidelines is a middle road, attempting to set the stage for change by assisting institutional food vendors in providing healthy fare while slowly bringing the consumer into an environment where healthy choices are easier to make.

Some critics believe that any such guidance is unwelcome and that vendors should be free to serve what they want. Food service vendors, however, often already receive guidance for menu development from nutrition professionals who likely recommend guidance similar to the HHS/GSA Guidelines. The availability of this scientifically based nutritional guidance, as exemplified by their fidelity to the DGA 2010, provides equal access for all vendors to compete in the provision of healthy meals and snacks.

Conclusions

Guidelines to improve the healthfulness and sustainability of institutional food services, such as the recently implemented HHS/GSA Guidelines, represent a unique opportunity to benefit public health by positively shaping a part of the food system. Although it is difficult to predict how food, health, and ecologic systems will be affected by health and sustainability guidelines, if designed and applied appropriately, they may lead to large-scale positive changes (61).

The institutional setting by its nature is a designer and architect of choice. Decisions made in the institutions' creation, building design, placement, and management establish choices for their stakeholders that influence individual and social outcomes of community development, environmental exposure, physical activity, dietary behavior, energy use, and more. Compounded by the large percentage of the population affected, these influences make institutions a powerful force in shaping cultural norms.

By increasing demand for healthy and sustainable foods, institutional health and sustainability guidelines have the potential to shift production and supply. There is a potential large-scale impact both at the community level from individual institutions and the national level due to the overall purchasing power of institutions. Further, guidelines that support regional purchasing, farmers markets, or community-supported agriculture will contribute to building local farm production, which may increase the supply of healthy products and ingredients, enabling wider availability at multiple access points.

Changing institutional food service practice requires comprehensive analysis, engagement, and education of relevant stakeholders, including those not typically considered in public health and nutrition. The HHS/GSA Guidelines represent an important model for how such recommendations can be applied in various settings. Nutritionists, public health practitioners, and researchers should consider working with institutions to develop, implement, and evaluate food service guidelines for health and sustainability.

Acknowledgments

All authors have read and approved the final manuscript.

Literature Cited

1. U.S. Department of Agriculture and U.S. Department of Health and Human Services. Dietary guidelines for Americans, 2010. Washington, DC: U.S. Government Printing Office; 2010.
2. American Dietetic Association Sustainable Food System Task Force. Healthy land, healthy people: building a better understanding of sustainable food systems for food and nutrition professionals. Available from http://www.hendpg.org/docs/Sustainable_Primer.pdf, 2007.
3. Muller M, Tagtow A, Roberts SL, MacDougall E. Aligning Food Systems Policies to Advance Public Health. *J. Hunger Environ Nutr.* 2009;4:225–40.
4. Frazao E, editor. America's eating habits: changes and consequences: a comparison of the U.S. food supply with the food guide pyramid recommendations. Agriculture Information Bulletin no. 750. Washington, DC: U.S. Department of Agriculture ERS Food and Rural Economics Division; 1999.
5. Larson N, Story M, Nelson M. Neighborhood environments: disparities in access to healthy foods in the U.S. *Am J Prev Med* 2009;36:74–81.
6. United States Department of Agriculture Economic Research Service. Access to Affordable and Nutritious Food: Measuring and Understanding Food Deserts and Their Consequences. Available from: <http://www.ers.usda.gov/Publications/AP/AP036/AP036.pdf>.
7. Matson-Koffman DM, Brownstein JN, Neiner JA, Greaney ML. A site-specific literature review of policy and environmental interventions that promote physical activity and nutrition for cardiovascular health: what works? *Am J Health Promot.* 2005;19:167–93.
8. Jeffrey RW, French S, Raether C, Baxter J. An environmental intervention to increase fruit and salad purchases in a cafeteria. *Prev Med.* 1994; 23:788–92.
9. Seymour JD, Yaroch AL, Serdula M, Blanck HM, Khan LK. Impact of nutrition environmental interventions on point-of-purchase behavior in adults: a review. *Prev Med.* 2004;39(Suppl 2):S108–36.
10. Mello MM. The Interplay of Public Health Law and Industry Self-Regulation: The Case of Sugar-Sweetened Beverage Sales in Schools. *Am J Public Health.* 2008;98:595–604.
11. Lindholm R. Combating childhood obesity: a survey of laws affecting the built environments of low-income and minority children. *Rev Environ Health* 2011;26:155–67.
12. Emory University Sustainable food. Available from: <http://sustainability.emory.edu/page/1008/Sustainable-Food>.
13. Yale University Green Purchasing. Available from: <http://www.yale.edu/procurement/greenPurchase/Events/CateringEvents.htm>.
14. Schwartz A. 6 Ways Google has greened its main campus. Oct 15, 2009. Available from: <http://www.fastcompany.com/blog/ariel-schwartz/sustainability/6-ways-google-has-greened-its-main-campus>.
15. New York City Department of Health and Mental Hygiene. New York City Food Standards. Available from: <http://www.nyc.gov/html/doh/html/cardio/cardio-vend-nutrition-standard.shtml>.
16. Gase LN, Kuo T, Dunet D, Schmidt SM, Simon PA, Fielding JE. Estimating the potential health impact and costs of implementing a local policy for food procurement to reduce the consumption of sodium in the county of Los Angeles. *Am J Public Health.* 2011;101:1501–7.

17. Massachusetts Office of Health and Human Services. Nutrition Standards for State Agencies. Available from: <http://www.mass.gov/eohhs/docs/dph/com-health/nutrition-phys-activity/eo509-fact-sheets.pdf>.
18. Yale Rudd Center. Assembly bill no. 727. Available from: http://www.aleruddcenter.org/resources/upload/docs/what/policy/legislation/CA_HB_727_Amended_bill_May_27_2011.pdf.
19. U.S. Department of Health and Human Services and General Services Administration. Health and Sustainability Guidelines for Federal Concessions and Vending Operations. Available from: <http://www.cdc.gov/chronicdisease/resources/guidelines/food-service-guidelines.htm>.
20. Centers for Disease Control and Prevention. Improving the Food Environment Through Nutrition Standards: A Guide for Government Procurement. Available from: http://www.cdc.gov/salt/pdfs/DHDSP_Procurement_Guide.pdf.
21. French SA, Story M, Jeffery R, Snyder P, Eisenberg M, Sidebottom A, Murray D. Pricing strategy to promote fruit and vegetable purchase in high school cafeterias. *J Am Diet Assoc.* 1997;97:1008–10.
22. French SA, Story M, Jeffery R. Environmental influences on eating and physical activity. *Annu Rev Public Health.* 2001;22:309–35.
23. Engbers LH, van Poppel M, Chin A Paw M, van Mechelen W. Worksite health promotion programs with environmental changes: a systematic review. *Am J Prev Med.* 2005;29:61–70.
24. Sorensen G, Linnan L, Hunt MK. Worksite-based research and initiatives to increase fruit and vegetable consumption. *Prev Med.* 2004;39 (Suppl 2):S94–100.
25. Thaler RH, Sunstein CR. Libertarian paternalism. *Am Econ Rev.* 2003; 93:175–9.
26. Thaler R, Sunstein C. *Nudge: improving decisions about health, wealth, and happiness.* New Haven: Yale University Press; 2008.
27. Kaiser Permanente's farmers' market patron survey summary of cross-site results. Available from: <http://www.permanente.net/homepage/kaiser/pdf/46367.pdf>.
28. Wong E, Portello D, Izumo A. Kaiser Permanente's farmers' markets help members, staff, and community members eat better and live healthier: results from a patron survey. [Abstract of poster session] *J Am Diet Assoc.* 2006; 106(8 Suppl)A78.
29. GSA and USDA. Farmer's markets and the people's garden. Available from: <http://www.gsa.gov/portal/content/104430>.
30. Kaiser Permanente. Medical center and...grocery store? Available from: <https://members.kaiserpermanente.org/redirects/farmersmarkets>.
31. Devine CM, Nelson JA, Chin N, Dozier A, Fernandez ID. "Pizza is cheaper than salad": assessing workers' views for an environmental food intervention. *Obesity (Silver Spring).* 2007;15(Suppl 1):57S–68S.
32. Ross NJ, Anderson MD, Goldberg JP, Lorge Rogers B. Increasing purchases of locally grown produce through worksite sales: an ecological model. *J Nutr Educ.* 2000;32:304–13.
33. NIOSH. essential elements of effective workplace programs and policies for improving worker health and wellbeing (NIOSH) publication no. 2010-140. Washington, DC: DHHS; 2008.
34. Harmon AH, Gerald BL, American Dietetic Association. Position of the American Dietetic Association: food and nutrition professionals can implement practices to conserve natural resources and support ecological sustainability. *J Am Diet Assoc.* 2007;107:1033–43.
35. APHA. Toward a Healthy Sustainable Food System. Available from: <http://www.apha.org/advocacy/policy/policysearch/default.htm?id=1361>.
36. American Medical Association. Report 8 of the Council on Science and Public Health Sustainable Food. Available from: <http://www.ama-assn.org/resources/doc/csaph/csaph-rep8-a09.pdf>.
37. Sparling PB. Worksite health promotion: principles, resources, and challenges. *Prev Chronic Dis.* 2010;7:A25.
38. Food Service Director. Non-patient service rules. Available from: <http://www.foodservicedirector.com/images/pdf/FSD-2009-Hospital-Census-Report.pdf>.
39. Food Service Director. Recession? Hospital revenue rose in '09. Available from: <http://www.foodservicedirector.com/images/pdf/FSD-2010-Hospital-Census-Report.pdf>.
40. Linnan LA. The business case for employee health: what we know and what we need to do. *N C Med J.* 2010;71:69–74.
41. Henke RM, Goetzel RZ, McHugh J, Isaac F. Recent experience in health promotion at Johnson & Johnson: lower health spending, strong return on investment. *Health Aff (Millwood).* 2011;30:490–9.
42. UNC Center for Health Promotion and Disease Prevention. Healthy Food Environments Pricing Incentives. Available from: <http://www.center-trt.org/index.cfm>.
43. Webber A, Mercure S. Improving population health: the business community imperative. *Prev Chronic Dis.* 2010;7:A121.
44. Hekler EB, Gardner CD, Robinson TN. Effects of a college course about food and society on students' eating behaviors. *Am J Prev Med.* 2010; 38:543–7.
45. OECD/Noya A, Clarence E. Community capacity building: fostering economic and social resilience. Project outline and proposed methodology, 26–27 November, 2009 working document, CFE/LEED, OECD. Version November 2009. Available from: <http://www.oecd.org/dataoecd/54/10/44681969.pdf>.
46. Anderson LM. The effectiveness of worksite nutrition and physical activity interventions for controlling employee overweight and obesity: a systematic review. *Am J Prev Med.* 2009;37:340–57.
47. Guide to Community and Preventive Services. Worksite health promotion. Available from: www.thecommunityguide.org/worksite/index.html.
48. Boles M, Pelletier B, Lynch W. The relationship between health risks and work productivity. *J Occup Environ Med.* 2004;46:737–45.
49. Wanjek C. Food at work: workplace solutions for malnutrition, obesity, and chronic disease. Geneva: International Labour Office; 2005.
50. Payne DM. Sustainable development: the ethics support the economics. *J Bus Ethics.* 2001;32:157–68.
51. Lin N. Building a network theory of social capital. In: Lin N, Cook KS, Burt RS, editors. *Social capital: theory and research.* New York: Aldine de Gruyter; 2001. p. 3–29.
52. General Services Administration. Executive Order 13423. Available from: <http://www.gsa.gov/portal/content/102452>.
53. Obama B. Executive order: federal leadership in environmental, energy, and economic performance. Available from: http://www.whitehouse.gov/assets/documents/2009fedleader_eo_rel.pdf.
54. Bureau of Labor Statistics. Career guide to industries, 2010–11 edition. Available from: <http://www.bls.gov/oco/cg/cgs041.htm>.
55. FDA. New menu and vending machines labeling requirements. Available from: <http://www.fda.gov/Food/LabelingNutrition/ucm217762.htm>.
56. FDA. Appendix A: definitions of nutrient content claims. Available from: <http://www.fda.gov/Food/GuidanceComplianceRegulatoryInformation/GuidanceDocuments/FoodLabelingNutrition/FoodLabelingGuide/ucm064911.htm>.
57. USDA. Sample biobased contract language for custodial services. Available from: <http://www.dm.usda.gov/procurement/programs/biobased/CustodialJanitorialFY08.pdf>.
58. USDA. National organic program. Available from: <http://www.ams.usda.gov/AMSV1.0/nop>.
59. Martinez S, Hand M, Da Pra M, Pollack S, Ralston K, Smoth T, Vogel S, Clark S, Lohr L, Low S, et al. Local food systems: concepts, impacts, and issues. Economic research report. Washington, DC: United States Department of Agriculture, Economic Research Service; 2010.
60. USDA. Legal definition of sustainable agriculture. Available from: http://www.nifa.usda.gov/nea/ag_systems/in_focus/sustain_ag_if_legal.html.
61. Leischow SJ, Best A, Trochim WM, et al. Systems thinking to improve the public's health. *Am J Prev Med* 2008;35(2 Suppl 1):S196–203.