

## Evidence-Based Strategies to Build Community Food Security

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Over the past decade, various entities within the United States (1-5), Canada (6,7), and Europe (6,8) have applied a food systems approach to build community food security. This approach to building community food security requires an understanding of how communities interact with resources in their social and physical environments over extended periods of time. It also uses strategies that address broad systemic issues affecting food availability, affordability, accessibility, and quality (1-10). The purpose of this article is to provide dietetics professionals with a three-stage continuum of evidence-based strategies and

activities that applies a food systems approach to building community food security.

### UNDERSTANDING KEY TERMS

#### Community Food Security

Community food security is an evolving concept that emphasizes long-term, systemic, and broad-based approaches to address food insecurity (1-6). Recently, Hamm and Bellows proposed the following definition of community food security: "A situation in which all community residents obtain a safe, culturally acceptable, nutritionally adequate diet through a sustainable food system that maximizes self-reliance and social justice" (5). This is the definition that will be used throughout this article. A combination of practical activities and policy development is required to achieve community food security (5).

#### Food Systems, Sustainability, and Sustainable Community Food Systems

A food system is a set of interrelated functions that includes food production, processing, and distribution; food access and utilization by individuals, communities, and populations; and food recycling, composting, and disposal (11). Food systems operate and interact at multiple levels, including community, municipal, regional, national, and global. Sustainability is defined as society's ability to shape its economic and social systems to maintain both natural resources and human life (12). A sustainable community food system improves the health of the community, environment, and individuals over time (13), involving a collaborative effort in a particular setting to build locally based, self-reliant food systems and economies (14,15).

### EVIDENCE-BASED STRATEGIES TO BUILD COMMUNITY FOOD SECURITY

Examples of evidence-based strategies and activities that dietetics professionals can use to build community food security are arranged on a continuum related to the time frame of the expected outcome (short to long term) (see Figure). These strategies and activities fall into three progressive stages: initial food systems change, food systems in transition, and food systems redesign for sustainability.

In stage 1, participants create small but significant changes to existing food systems. Data collected at this stage can be used to inform the work undertaken in subsequent stages. In stage 2, food systems change is progressing, and efforts are directed toward facilitating and stabilizing that change. In stage 3, efforts are made to institutionalize food systems change through advocacy and policy instruments that integrate different policy fields. Data collection, monitoring, and evaluation are conducted at all stages. A detailed discussion of the strategies and activities outlined in the three-stage community food security continuum follows and is summarized in the Figure.

#### Stage 1: Initial Food Systems Change

Stage 1 of the community food security continuum focuses on strategies and activities that create small but significant changes to existing food systems. Data collected at this stage can be used to inform the work that is undertaken in subsequent stages. An example of a strategy that dietetics professionals can use to facilitate initial food systems change (6) is client counseling to maximize access to existing programs providing food and nutrition assistance, social services,

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Stage of continuum	Stage 1: Initial food systems change	Stage 2: Food systems in transition	Stage 3: Food systems redesign for sustainability <sup>a</sup>
<b>Strategies and activities</b>	<p>Counsel clients to maximize access to existing programs providing food and nutrition assistance, social services, and job training.</p> <p>Document the nutritional value of emergency foods.</p> <p>Identify food quality and price inequities in low-income neighborhoods.</p> <p>Educate consumers and institutions about the benefits of local, seasonal, and organic foods.</p>	<p>Connect emergency food programs with local urban agriculture projects.</p> <p>Create multi-sector partnerships and networks.</p> <p>Facilitate participatory decision-making and policy development through serving on food policy councils and organizing community-mapping processes and multistakeholder workshops.</p>	<p>Advocate for minimum wage increase and more affordable housing.</p> <p>Advocate for food labeling standards about product history (eg, place of origin, organic certified, Fair Trade certified<sup>b</sup>).</p> <p>Through participatory decision-making and policy development, mobilize governments and communities to institutionalize:</p> <ol style="list-style-type: none"> <li>(1) land use policies that facilitate large-scale urban agriculture;</li> <li>(2) market promotion and subsidies as a way to increase a community's food self-reliance and achieve nutrition goals; and</li> <li>(3) tax incentives and financing mechanisms to attract local food businesses to low-income neighborhoods.</li> </ol>
<b>Time frame</b>	Short term	Medium term	Long term
<b>Evaluation</b>	Data collection, monitoring, and evaluation are conducted at all stages of the community food security continuum.		

**Figure.** Evidence-based strategies and activities associated with a three-stage community food security continuum. Adapted from a framework originally developed by MacRae (10). <sup>a</sup>Sustainability is defined as society's ability to shape its economic and social systems to maintain both natural resources and human life (12). <sup>b</sup>Fair Trade is an innovative, market-based approach to sustainable development that helps family farmers in developing countries gain direct access to international markets, as well as to develop the business capacity necessary to compete in the global marketplace. In the United States, TransFair USA places the "Fair Trade Certified" label on coffee, tea, cocoa, bananas, and other fruits. For more information, see: [www.transfairusa.org](http://www.transfairusa.org).

and job training (16). Furthermore, dietetics professionals can collect data on the nutritional adequacy of foods served in emergency food programs (5) because there is evidence that people who rely regularly on such sources may have inadequate nutritional intake (17,18). There is also some evidence that people who live in low-income neighborhoods may not have easy access to food retail outlets that sell a variety of affordable and healthful foods (19). Therefore, it is valuable to determine whether pricing and food quality inequities exist in food stores located in low-income neighborhoods (6,20). Overall, this type of research and documentation is a useful early step to ensure that all community residents have access to nutritionally adequate and affordable foods.

Dietetics professionals can also facilitate initial food systems change by educating consumers and institutions about the benefits of purchasing locally grown, seasonally available, and organically produced food. When consumers purchase foods that have been produced locally, a greater proportion of the profits remain with local farmers, providing them with a livable income and supporting local economies (21). Purchasing locally-produced foods protects the environment by reducing the use of fossil fuel and packaging materials (22,23). The benefits of organic farming systems extend to farmers, consumers, and the environment. The results of a Washington state study showed that organic apple production provided similar yields, better-tasting fruit, and higher profitability, and was

more environmentally sound and energy efficient than apples produced by conventional practices (24). Other benefits of organic farming practices include reduced groundwater pollution from nitrogen and phosphorus fertilizers, improved soil fertility, and reduced occupational exposure to pesticides (25), which has been associated with acute and chronic human illnesses (26-28). Dietetics professionals in California, Iowa, Minnesota, New York, Pennsylvania (15,22,29), Michigan (Ruth Blackburn, MPH, RD, personal communication, April 2004), and Canada (eg, Ontario, British Columbia) (30,31) are working to educate consumers and institutions regarding the advantages of purchasing locally-grown, seasonally-available, and organically-produced food.

### Stage 2: Food Systems in Transition

Stage 2 of the community food security continuum focuses on strategies and activities that support food systems in transition toward initiatives that have not traditionally been utilized by the current food systems. In this stage, the social infrastructure needed to connect various food system processes is established or strengthened through capacity building and multisector partnerships and networks. Stage 2 involves shifting food distribution activities from private (eg, food banks) to public spaces (eg, community gardens and community-supported agriculture [CSA] farms) and promoting economic renewal projects and job creation through farmers' markets and small-scale food businesses. Strategies and activities in this stage also encourage broader civic participation through participatory decision-making processes and initial policy development (4,6,7,32,33), which may serve as examples and set precedent for change that can be accomplished at a larger level over time. Several types of transition strategies and activities are described below.

**Connecting emergency food programs with urban agriculture projects.** Urban agriculture involves producing food closer to where most consumers live and is an increasingly important strategy for achieving food security in the 21st Century as the world becomes more urbanized (9,34). It offers many potential benefits such as reducing energy costs and pollution from food transportation and storage, absorbing greenhouse gas emissions, offering a viable use for urban waste as compost, and creating employment and economic development opportunities (34-36).

An example of a successful effort to link urban agriculture projects with emergency food programs is the Michigan Food Bank Garden Project, which administers 18 community gardens in the Lansing area. All garden participants receive supplies and training, which enable them to grow and preserve their own fresh vegetables. A second initiative of this project organizes volunteers to harvest surplus fruits and vegetables from local farms that are distributed to residents of low-income housing projects (9).

Another successful example involves linking emergency food pro-

grams with CSA farms (37), an innovative strategy designed to connect local farmers with local consumers, develop a regional food supply, strengthen a local economy, maintain a sense of community, encourage land stewardship, and honor the knowledge and experience of local food producers (38). CSA members pay a fee or volunteer their time in exchange for a share of the CSA farm's produce each week during the harvest season (38). In the state of New York, dietetics professionals are involved with efforts linking emergency food programs with urban agriculture projects, including community gardens (39) and CSA initiatives (37).

**Creating multisector partnerships and networks.** Dietetics professionals can support food systems in transition by creating or joining multisector partnerships and networks that result in mutually beneficial programs and projects. For example, partnerships and networks are created by providing nutrition education at farmers' markets (15) and conducting research on enablers of and barriers to establishing, accessing, and participating in farmers' markets within low-income communities (40,41). Farmers' markets improve consumers' access to fresh produce through reduced prices while stimulating the vitality and sustainability of the local economy (42,43).

Two US federal assistance programs expand low-income populations' access to fresh produce at farmers' markets: the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) Farmers' Market Nutrition Program (FMNP) (44) and the Seniors Farmers' Market Nutrition Program (SFMNP) (45). Research in Michigan revealed that the maximum positive impact on fruit and vegetable consumption was achieved among WIC FMNP participants when nutrition education accompanied the coupons that were distributed as incentives to improve affordability (46). Evaluation of consumer participation in the SFMNP in South Carolina suggested that participants receiving vouchers reported an intention to eat more fruits and vegetables year round (47).

Dietetics professionals can also create multisector partnerships that involve urban agriculture projects (eg, CSA farms and community gardens)

and farm-to-school programs. For example, one urban agricultural partnership in Colorado connected CSA farms with the WIC program to promote both fruit and vegetable consumption and physical activity for WIC participants (48). Urban agricultural partnership projects such as community gardening exemplify an integrated approach to health promotion by increasing community networks, expanding green space, lowering urban-neighborhood crime rates, and providing employment opportunities (9,49,50). Farm-to-school partnerships provide local markets for farmers and integrate education about local food and farming issues with local foods served in school cafeterias. These partnerships may also lead to arranging special events with local farm organizations, creating nutrition curricula around school gardens, and providing opportunities for field trips to local farms. Farm-to-school programs have been shown to produce positive outcomes such as promoting greater fruit and vegetable consumption (51). Dietetics professionals have been actively involved in starting up farm-to-school programs in Alabama (22), New York (22), Pennsylvania (30), California (Margaret Haase, MPH, RD, personal communication, April 2004), and New Hampshire (Helen Costello, MS, RD, personal communication, April 2004).

**Facilitating participatory decision-making processes and policy development.** Community residents must participate in decision-making processes and policy development to increase their access to resources (8,52,53). Participatory decision-making and policy development can promote social cohesion and reduce inequities by building connections between local food production and consumption (4,8,53,54). Participatory community food security strategies and activities such as food policy councils, community-mapping processes, and multistakeholder workshops offer a planning framework and tools to involve local residents in defining and analyzing their community's issues and mobilizing community action around a range of food system problems (4,53,54). Each of these strategies and activities is described in more detail below.

A food policy council is an officially sanctioned body representing various

segments of a state, city, or local food system and is composed of diverse stakeholders representing a wide range of interests related to agriculture, food, nutrition, and health. The goal of a food policy council is to foster a comprehensive and systematic examination of agriculture, food, nutrition, and health policies (32). A food policy council may also bridge diverse interests toward a common goal (32,55). Several statewide food policy councils are active in Arizona, Connecticut, Illinois, Iowa, New Mexico, North Carolina, Oklahoma, Utah, and Washington (32,55). Municipal food policy councils operate in Berkeley, CA (56), Knoxville, TN; Los Angeles, CA; Portland, OR; Salina, KS; Toronto, Ontario, Canada (57); Minneapolis-St Paul, MN (58); and Vancouver, British Columbia, Canada (Corinne Eisler, RD, personal communication, March 2004). Dietetics professionals are serving on food policy councils in Iowa (58); Portland, OR (59); Knoxville, TN (Betsy Haughton, EdD, RD, personal communication, February 2004); and Vancouver, British Columbia, Canada (Corinne Eisler, RD, personal communication, March 2004).

The Toronto food policy council has been instrumental in placing community food security and food policy development on the municipal agenda. Among its notable accomplishments are conducting research for the City of Toronto and Food Share Toronto, which led to the construction of an incubator kitchen; working with the Economic Development Committee, Board of Health, and Parks and Recreation to develop strategies for featuring farmers' markets at various civic centers; and chairing the School Garden and Compost Committee at the Toronto Board of Education, which included conducting 25 gardening workshops and developing a manual for school garden and compost projects (57).

Dietetics professionals can also facilitate participatory decision-making processes and policy development through organizing community-mapping processes and multistakeholder workshops. A community-mapping process involves analyzing the community environment, examining the causes and consequences of food insecurity, and implementing strategies for improving local community food

security (33,53). Diverse food system stakeholders—including urban planners, food producers and retailers, volunteers in food access projects, food-insecure individuals, and other concerned citizens—convene to engage in a process that examines how a local community food system can meet household and community needs by identifying available local food resources, food prices, transportation options, and employment opportunities. For example, the Portland-Multnomah County food policy council has partnered with the regional government to create a geographic information system map of grocery stores, farmers' markets, emergency food locations, and community gardens in the county (59). Community mapping is also used to inform multistakeholder workshops at which views are exchanged through interactive processes to support project planning and policy formulation (53).

The purpose of a multistakeholder workshop is to provide a common vision and a platform for building consensus among diverse participants who may have divergent or competing interests (55). One evaluation in upstate New York suggests that, to build community food security, practitioners may benefit from skills in facilitation, negotiation, and conflict resolution to transform conflict into greater capacity, equity, and justice (4,60).

### Stage 3: Food Systems Redesign for Sustainability

Stage 3 of the community food security continuum provides examples of strategies and activities in which citizens and government institutions play a larger role in building community food security. This stage involves advocacy and public policies that integrate different policy fields (eg, education, labor, economic development, agriculture, food, social welfare, health) to increase a community's food self-reliance and achieve nutritional goals (6) (see Figure). Integrated policies should ensure that all community members have the capacity to buy healthful foods rather than rely regularly on charitable food sources. As well, it is important that the proportion of the locally-based food supply increases over time for the entire population, which may be achieved through land-use policies, market pro-

motion, and subsidies, tax incentives, and financing mechanisms.

Norway is an example of a country that has used integrated policy instruments to redesign its food system. Norwegians aspired to increase their domestic food self-reliance from 39% to 52% of total calories and to achieve macronutrient intakes appropriate for a healthful diet using policy tools such as production and consumer subsidies, market promotion, consumer education, and food labeling and penalties for unhealthful foods (61). By 1988, Norway had reached 50% food self-reliance and increased whole-grain consumption and the quality of locally-produced grains and potatoes. Greater improvements were limited by the lack of human and financial resources (62).

### SUMMARY

This article provides dietetics professionals with a three-stage continuum of evidence-based strategies and activities that applies a food systems approach to building community food security. Stage 1 creates small but significant changes to existing food systems through such strategies as identifying food quality and pricing inequities in low-income neighborhoods and educating consumers regarding both the need and the possibilities for alternative food systems. Stage 2 stabilizes and augments change for food systems in transition by developing social infrastructure through multisector partnerships and networks and fostering participatory decision-making and initial policy development. Based on these changes, stage 3 involves advocacy and integrated policy instruments to redesign food systems for sustainability. Data collection, monitoring, and evaluation are key components of all stages of the community food security continuum.

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