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Finding the Fastest Way to Her Heart

Linking Clinical and Policy Pathways

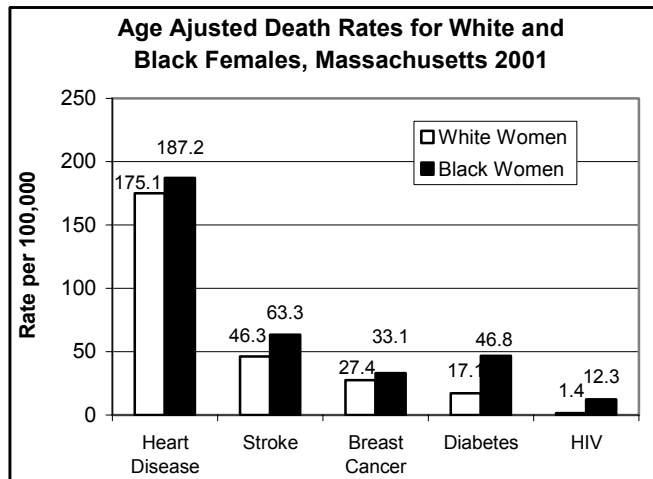
*Paula Johnson, Brian R. Schuetz, Shelley
M. Stark, and Dora Tovar*

The Mary Horrigan Connors Center for Women's Health and Gender Biology at Brigham and Women's Hospital in Boston, integrates research, clinical practice, and policy analysis with practical application to emerging women's health issues. Recently, an interdisciplinary team of practitioners examined pathways to improving women's heart health. Beginning with the evidence that a heart-healthy diet leads to improved health outcomes for women with cardiovascular disease, the Connors Center team charted a course of intellectual exploration that culminated in a broader community dialogue on how to improve access to healthy and affordable food. Through clinical experiences, research activities, and an ongoing interchange of ideas, the team learned that the fastest way to a woman's heart health is through the community. This case study examines the learning process that took the team from a single-focused clinical approach to a multi-tiered community effort to improve food access in an urban community.

Hear disease is the leading cause of death among women in the United States, claiming more lives than the next seven causes combined.¹ Risk factors for cardiovascular disease include non-modifiable factors such as increasing age and family history, and modifiable factors such as smoking, high blood pressure, high cholesterol, physical inactivity, diabetes, obesity, and overweight. African American women have the highest rates of heart disease of all racial/ethnic groups and are more likely to die prematurely from heart disease than white women.^{2,3}

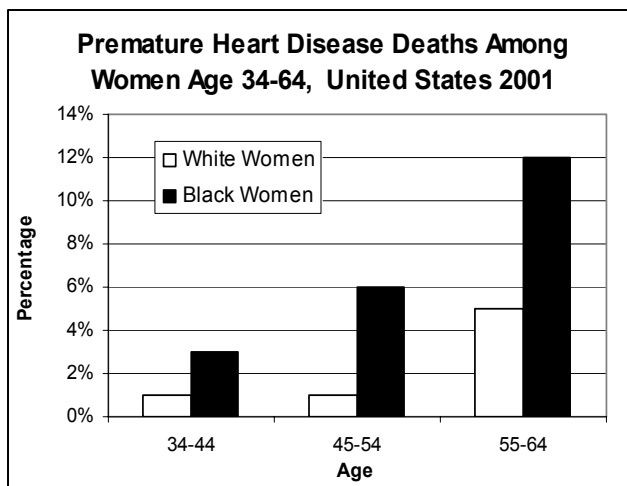
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Figure 1: Death Rates by Race



Source: Massachusetts Department of Public Health, Massachusetts Deaths 2001, May 2003

Figure 2: Premature Heart Disease Deaths



Source: Centers for Disease Control and Prevention, "Disparities in Premature Deaths from Heart Disease, 2001. MMWR. 2004; 53: 121-125.

**THE PROBLEM: CARDIOVASCULAR DISEASE
AND WOMEN OF COLOR**

Many heart disease risk factors are more common among black women than white women. For example:

- Black and Hispanic women in the United States are more likely to be overweight or obese than white women.⁴
- African American women have more than twice the rate of diabetes as white women.⁵
- The prevalence of high blood pressure in American blacks is among the highest in the world, developing earlier and with greater severity. Black women in the United States have the highest rate of high blood pressure of any race-sex group, and are the least likely race/gender group to have their high blood pressure controlled.^{6,7}
- Though African Americans tend to have lower blood cholesterol levels than whites, 46 percent of African American women still are at increased risk for heart disease due to borderline-high cholesterol.⁸

According to the Boston Public Health Commission, minority communities now comprise the majority of residents in the city of Boston.⁹ The 2005 American Community Survey estimates more than 50,000 African American women and over 25,000 Hispanic or Latina women over age eighteen reside within the city.¹⁰ Together, these two groups comprise more than 15 percent of all Boston residents. In Boston, these communities are at greater risk for disease and hospitalization. Black residents, for example, are twice as likely to develop diabetes as are white residents and have higher hospitalization rates than whites and Latinos.¹¹ In fact, overall life expectancy for women of color lags behind their white counterparts; black women have a life expectancy 3.6 years less than that of white women in Boston.¹² The majority of black, Latina, and Hispanic women also live in communities that are economically depressed, with greater exposure to crime and environmental toxins and less access to healthy and affordable food.

In order to overcome the challenges of these disparities, an approach to improving women's health care outcomes requires fuller analysis of the antecedents of poor health and risk behaviors, as well as an understanding of the systems that contribute to these disparities.

Access to Good Food in Boston

It is well acknowledged that heart-healthy eating — that is, a diet that is low in fats, particularly saturated and trans fats, and high in fruits, vegetables, and whole grain products — is critically important in reducing the

risk for heart disease. When coupled with physical activity, weight loss, and lack of exposure to tobacco products, heart disease risk can be reduced significantly. But affordable, healthy foods can be difficult to access in low-income communities. The cost of healthy food is higher at smaller inner city food stores, if healthy foods are present at all.¹³ Most problematic is that low-income families and communities with high minority representation have limited access to larger grocery stores where heart-healthy food is less expensive.¹⁴

The city of Boston is made up of sixteen neighborhoods. In 2000, Boston had an estimated number of 589,141 residents.¹⁵ Of these residents, almost 24 percent were black and 50 percent were white.¹⁶ In 2003, 19 percent of the population lived below the federal poverty level.¹⁷ Currently, 23 percent of children and adults age sixty-five and over live below the federal poverty level.¹⁸

Many low-income families and particularly single elderly women in Massachusetts and the nation face significant challenges in stretching their limited income to cover the costs of their basic needs. The overall cost of living in Boston is about 37 percent higher than the average American city.¹⁹ Boston is the seventh most expensive city in the United States in terms of rent, with a median cost of \$933 per month, \$250 more than the national median,²⁰ compared to an average monthly income in eastern Massachusetts of \$880.²¹ As a result of the high portion of income devoted to rent, many Boston residents have little income left to purchase the other necessities of life, including food.

Hunger is a major problem for residents of Massachusetts and the city of Boston. In 2005, more than 321,500 people in eastern Massachusetts sought food assistance.²² According to The Greater Boston Food Bank, food banks in the state have seen an increase in the amount of food they distribute to emergency food providers throughout the state; the need continues to outpace the ability of hunger relief organizations to provide assistance.²³

Food insecurity²⁴ has also been linked to the hunger-obesity paradox, which results from inadequate resources to purchase food.²⁵ Studies have indicated that when cost constraints are imposed, people tend to rely more on low-cost, energy-dense foods such as traditional fast food options that are not consistent with a healthy diet. This, in turn, can lead to overweight, obesity, and other ill effects of poor nutrition.^{26 27}

There are complex issues facing women and families in accessing affordable, healthy food in order to improve health and reduce the risk of cardiovascular disease. Improving health requires that we examine and address these issues from the multiple perspectives of health care delivery, community engagement, public health, and public policy.

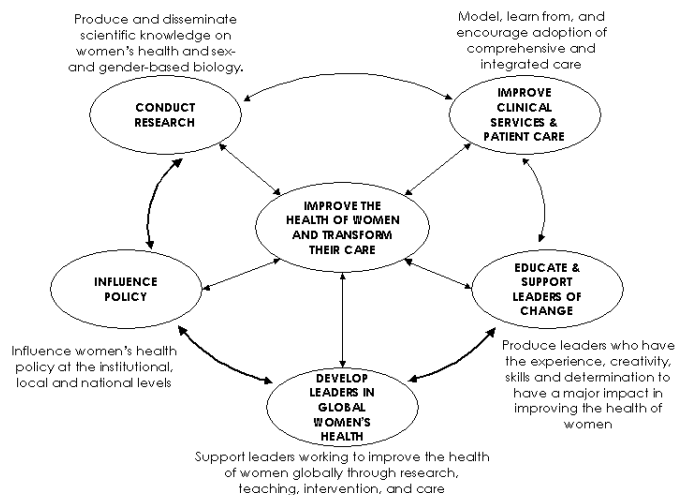
**AN INTEGRATED APPROACH:
CONNORS CENTER MODEL OF INTEGRATION**

Created in 1999, the Connors Center for Women’s Health and Gender Biology at Brigham and Women’s Hospital is a unique, interdisciplinary program designed to improve the health of women and transform their care. Led by Paula A. Johnson, M.D., M.P.H., the Connors Center is working to move beyond a traditional “silo” approach for addressing women’s health issues. The Connors Center seeks to improve the health of women and transform their care by collaborative planning, program development, and initiatives including:

- **Research** on sex- and gender-based biology²⁸ and the impact of sex and gender on disease, health outcomes, and the delivery of care;
- **Patient care** improvements, including the translation of research findings into clinical practice, and modeling and encouraging the adoption of comprehensive and integrated care;
- **Leadership** development to create and encourage leaders to improve women’s health, and expanding educational support and training opportunities for women;
- **Global efforts** to support leaders working to improve the health of women around the world through research, teaching, intervention, and care;
- **Policy research** and outreach to improve the health of women by influencing policy at the local, state, and national level.

This model of collaboration is based on the visual image of the wheel as shown in Figure 3, with each discipline connected with the core mission and with each other.

Figure 3: The Connors Center Model



The Application to Community-Focused Initiatives

The Connors Center model of integration is highly applicable to community-focused research and policy activities. Translating research into community change requires the involvement of diverse constituencies, including researchers, clinicians, community leaders, and policy makers. Hospitals, particularly academic medical centers, are well positioned to serve as the linchpin of broad collaborative efforts, touching many parts of the community as a resource of emerging scientific and medical knowledge, a provider of care, an employer, and a place where communities come together. By serving as a convener, hospitals can raise the perceived importance of issues for both expert and lay communities.

THE RESPONSE

The Center for Cardiovascular Disease in Women (CCDW) at the Connors Center is committed to helping women with and at risk for cardiovascular disease through prevention, outreach, and treatment. The CCDW works with physicians and patients to better understand the barriers to reducing the risk of cardiovascular disease, particularly among populations of women at greatest risk. Physicians at the Brigham and Women's Hospital routinely recommend a healthy diet to their patients at risk for or diagnosed with cardiovascular disease. In some cases, patients are referred to the Nutrition Department for further counseling. But physicians, aware of the lack of compliance by patients advised to adopt a heart-healthy diet, have learned of the challenges faced by patients in trying to access and afford fresh produce. Some of their patients lived in parts of Boston with limited access to supermarkets and no local grocers who stocked a selection of fresh fruits and vegetables. Some patients who were not native to Boston were unfamiliar with how to prepare the produce that was available. As a result, CCDW designed a study to investigate further the challenges poor women face accessing healthy food.

The Research Project

From 2003 to 2005, staff from the CCDW at Brigham and Women's Hospital undertook the Healthy Heart Initiative, a study to test the hypothesis that neither the maximum benefit provided by the Food Stamps program nor the Boston food budget from the Massachusetts Financial Economic Sufficiency Standard (MassFESS) — an alternate measure of poverty — was adequate to cover one month worth of healthy, culturally acceptable foods for seniors living alone or for a family of four in Roxbury or Jamaica Plain (Brigham and Women's Hospital catchment area).

Study staff from the CCDW conducted focus groups with black women in Roxbury and Latina women in Jamaica Plain from two different age groups.

Group one consisted of women age sixty-five and older living alone. Group two consisted of women under the age of sixty-five with children under age eighteen in the household. Focus groups were used to develop and test a series of culturally acceptable, model seven-day food menus.

The goal of the menu development process in this study was to adapt existing meals to improve their nutritional value, rather than to impose a predetermined heart healthy diet that may not be feasible or appealing to the target audience. Information was collected from the focus group members about household food preferences, preparation, and cost and access issues. Focus group questions covered the topics of general eating patterns, healthy alternatives, grocery shopping, and barriers to healthy eating. Registered dietitians worked with focus group participants to develop two sets of model seven-day menus that were culturally appropriate and nutritionally adequate for a heart-healthy diet.

These menus were translated into shopping lists. Food prices were then collected for the seven-day menus at local grocery stores frequented by focus group participants. Average daily and monthly food cost estimates were developed, and cost estimates were weighed against two food benchmarks. The first was the maximum benefit provided by the Food Stamps Program and the second was the Massachusetts Financial Economic Sufficiency Standard (MassFESS) food budget for Boston.

Analysis of the food plans for the Roxbury sample group yielded the results found in Table 1. The average monthly food cost for a senior living alone in Roxbury is estimated at \$199, the maximum Food Stamp benefit is \$141 (FY 04) and the MassFESS food budget is \$178, shortfalls of \$58 and \$21, respectively. The average monthly food cost for a family of four (two adults, one teenager, one child) in Roxbury is estimated at \$687, the maximum Food Stamp benefit is \$471 (FY 04) and the MassFESS food budget is \$554, shortfalls of \$216 and \$133, respectively.

Table 1: Results from Healthy Heart Roxbury

Roxbury	Cost	FS Max*	Diff	FESS	Diff
Senior	\$ 24	\$ 13	-\$ 10	\$178	-\$ 64
Family (4)	\$692	\$465	-\$227	\$554	-\$138

*FY 03, FS: Food Stamp; FESS: Massachusetts Financial Economic Sufficiency Standard

The analysis from the Jamaica Plain sample group produced similar results as shown in Table 2. The average monthly food cost for a senior living alone in Jamaica Plain is estimated at \$181, the maximum Food

Stamp benefit is \$149 (FY 05) and the MassFESS food budget is \$178, shortfalls of \$32 and \$3, respectively. The average monthly food cost for a family of four is estimated at \$926, the maximum Food Stamp benefit is \$499 (FY 05) and the MassFESS food budget is \$554, shortfalls of \$427 and \$372, respectively.

Table 2: Results from Healthy Heart Jamaica Plain

Jamaica Plain	Cost	FS Max*	Diff	FESS	Diff
Senior	\$181	\$149	-\$ 32	\$178	-\$ 3
Family (4)	\$926	\$499	-\$427	\$554	-\$372

*FY 03, FS: Food Stamp; FESS: Massachusetts Financial Economic Sufficiency Standard

Study findings concluded that neither the maximum Food Stamp benefit nor the MassFESS food budget is adequate to cover the cost of one month of culturally acceptable, healthy food in either community for these two family types.^{29 30} Thus, many low-income people living in Roxbury and Jamaica Plain have limited access to affordable healthy food options.

Additionally, a study conducted by Boston Medical Center, “*The Real Cost of a Healthy Diet*,” found that the cost of the USDA’s Thrifty Food Plan and a healthier diet market basket both exceeded nutrition assistance program benefit amounts.³¹ *The Real Cost of a Healthy Diet* also found that even when School Meals benefits are added to average Food Stamps benefits, benefit amounts are not nearly enough to meet food costs.

Both the Connors Center Healthy Heart Initiative^{32 33} and the *Real Cost of a Healthy Diet*³⁴ demonstrated that the current cost of a healthy and culturally appropriate diet is unaffordable to many low-income families in Boston.

The Healthy Heart Initiative also illustrated the value of working with communities to incorporate their cultural food preferences into the development of model heart-healthy meal plans. Rather than distributing standardized materials recommending particular foods, nutritionists and participants worked together to modify existing meals to improve their heart health, while preserving unique cultural foods and tastes. This highlighted the importance of outreach staff and materials being available in the diverse languages of target communities and using culturally appropriate messages. Therefore, partnerships between food security agencies and community organizations, including neighborhood and church groups, are important.

Developing Partnerships

At the Connors Center, the Center for Cardiovascular Disease in Women joined with the Women's Health Policy and Advocacy Program in recognizing that increasing access to affordable healthy food in Boston would require partnerships between a diverse group of stakeholders and a strategy to bring this diverse constituency together to begin an inter-disciplinary dialogue.

The Connors Center, with support from the Harvard Pilgrim HealthCare Foundation, convened the Boston Public Health Commission, the City of Boston, and The Food Project, a community nonprofit organization dedicated to promoting sustainable local food systems to increase food security and inspire social change, to work collaboratively to organize a summit on access to affordable healthy food in Boston. Each organization was already individually engaged in a local effort to improve access to affordable healthy food and each brought an important capacity to the partnership. Together with the Connors Center team they formed the strategic planning group that would connect these efforts to engage community stakeholders in a community dialogue on the issue.

The summit was designed to achieve two overarching goals: (1) to galvanize support among policymakers, academicians, healthcare providers, and community members around the issue of access to and availability of affordable, healthy foods in low-income communities; and (2) to increase collaboration among coalitions and groups working to improve access to affordable, healthy foods. The key areas of discussion would be: community engagement, healthcare, food systems,³⁵ and policy. The discussions focused on the following questions:

- What are the fundamental issues around access to affordable and healthy food in the City of Boston? What are the contexts (social, environmental, systemic) that contribute to the challenges?
- What strategies have been employed to address these issues?
- Who needs to be involved to address the identified issues, especially beyond the traditional boundaries of this area?
- What are three key short- and long-term action steps? Who should and will be responsible for this work?

The participants for *Food Inside the Hub* were key informants and stakeholders from a variety of disciplines in the areas of healthcare, policy, community, and food systems (Table 3).

The summit was held in Roxbury, one of Boston's sixteen neighborhoods and the first site of the study. This community of color has a population that

Table 3: Summit Invitees

Area	Organizations/Individuals
<i>Healthcare</i>	Hospitals, community health centers, academic institutions, nutritionists
<i>Food Systems</i>	Grocers, farmers, shelters, pantries, food associations, agriculture
<i>Community</i>	Community Based Organizations, coalitions, community groups, community residents
<i>Policy</i>	Legislators, public officials, government programs, policy organizations, schools

is 53 percent black, 22 percent Latino, 15 percent white, 5 percent Asian, and 2 percent other.³⁶ Roxbury is also one of the poorest neighborhoods in the city. Twenty-nine percent of its residents live below the federal poverty level.³⁷

Obesity is a major health risk in Roxbury, particularly among people of color. In 1999–2001, 62 percent of black and 63 percent of Latino residents of Roxbury were overweight, compared to only 31 percent of white neighborhood residents.³⁸ Additionally, heart disease is the second leading cause of death in the neighborhood, with an age-adjusted rate of 212.9 deaths per 100,000 in 2000–02.³⁹

RESULTS: SUMMIT HIGHLIGHTS

The summit was an all-day event; participants joined morning sessions that provided baseline knowledge of the complex aspects of food accessibility. The Honorable Thomas Menino, Mayor of Boston, described the progress made by the city on health and food issues over the years and challenged participants to do more on this important issue. He also charged the Boston Public Health Commission to follow up as the city’s lead public health agency to ensure that the work begun at the summit would continue. Facilitated discussions in the afternoon were a unique opportunity for a diverse set of participants working on different portions of the problem of access to healthy foods to share ideas and develop collaborative approaches.

The Summary Report

The cross-disciplinary aspect of the discussion resulted in a set of “Guiding Principles.” The systems approach principle recommended engagement in a broad spectrum of change modalities, voluntary and regulatory. A second principle focused on creating an agenda for action, which encouraged creativity, risk taking, and collaborative efforts. The third principle supported efforts to develop leadership and capacity-building strategies to

create a sustainable and well-directed movement. A fourth principle recommended inclusive and broad-based representation for future efforts. The final principle advised the creation of sustainable relationships through

Table 4: Strategic Recommendations

Community

- Assess the current status of community food and nutrition needs to determine gaps in knowledge and infrastructure.
- Develop a comprehensive communication strategy, including social marketing campaigns.
- Support an environment and city culture that embrace healthy eating and living.
- Encourage broad participation by youth in partnerships to promote consumption of healthy food.
- Promote the positive economic development aspects of improved food access.
- Expand community gardens in diverse communities and settings across the city, including housing projects and schools.
- Implement public information campaigns promoting healthy lifestyle choices to those most impacted by lack of food access and affordability

Healthcare

- Improve health care providers' understanding of the environmental, cultural and economic challenges faced by patients concerning access to affordable healthy food.
- Improve medical practitioners' access to and integration with nutrition practitioners.
- Expand research of key drivers of individual dietary choice for a wide variety of cultural and economic levels.
- Focus resources on specific "teachable moments" in the lives of at-risk individuals.
- Utilize strategies for behavioral modification and lifestyle change successful in other health.
- Ensure that issues of nutrition and food access are part of efforts to reduce and eliminate health disparities.
- Improve linkages between hospitals/community health centers and healthy food providers, Community Supported Agriculture (CSA) programs, farmers markets, and government food assistance programs.
- Work with health insurers and other key healthcare payers to develop forums for discussions of the importance of healthy nutrition and strategies to improve access to affordable healthy foods.

Food Systems

- Assess, evaluate, and report on the effectiveness of the local food system in increasing production, distribution, processing, marketing and consumption of healthy food *in Boston*.
- Assess, evaluate, and report on the effectiveness of the state and regional food system in increasing production, processing, distribution, marketing, and consumption of healthy food in Massachusetts.
- Review zoning policies and explore ways to increase agricultural land use in and near Boston.
- Build partnerships to incorporate community gardens, raised beds, and urban farms in existing and new construction and land use design.

- Expand capacity of local farmers to make fresh produce available from small food retailers and promote collaboration and cooperation between small local food retailers, local farmers, and distributors of healthier food.
- Support innovative food distribution models through community partnerships to expand supplies of affordable local fresh produce in local food markets.
- Design a marketing campaign that promotes availability and affordability of local, sustainably grown, healthy and delicious food.

Policy

- Develop city policies that encourage community residents' involvement in decisions regarding the siting of food stores and restaurants in their neighborhoods, with the goal of promoting the creation of healthy and affordable options.
- Encourage local growers, nutrition experts, and community-based organizations to partner with the Boston Public School System to make available healthier, locally grown food options for student meals.
- Identify and support legislative efforts that promote access to healthy foods. Improve access to healthy food through the Food Stamp, WIC, senior meals programs, and other public support programs.
- Create a mechanism, such as a food policy council, to organize and coordinate cross-sector efforts to improve the access to healthy, affordable foods.
- Expand the number, geographic reach, and financial accessibility of Farmers' Markets and food cooperatives, and identify and prioritize areas for improvement leading to increased access for more of Boston's residents.
- Support efforts to improve nutritional literacy and understanding for all.

clear definition of short-, medium-, and long-term goals as well as promoting lasting commitments from partners.

The Strategic Planning Group synthesized the discussion sessions into a set of strategic and tactical approaches designed to improve access to affordable, healthy foods. The result was six to ten strategic approaches for each of the four issue areas (community, healthcare, food systems and policy) as well as a number of potential short-term action steps for each issue area. The strategic recommendations are listed in Table 4.

LESSONS LEARNED

First, as African American women have the highest rates of heart disease of all racial/ethnic groups and are more likely to die prematurely from heart disease, ongoing efforts to eliminate health disparities understandably include a major focus on reducing the risk of heart disease. One critical element of risk reduction is eating a healthy diet. Clearly, if we are to address the real health inequalities in cardiovascular disease, we need to consider more systemic solutions that enable people to access the fresh fruits and vegetables and other components of a heart-healthy diet.

The second lesson learned is that identifying, understanding, and reducing the structural barriers to improving health, including access to affordable

healthy food, requires collaboration between diverse constituencies — clinicians, researchers, community members, public and nonprofit organizations, and policy makers. Many who participated in the *Food in the Hub* summit had worked on issues of healthy eating and food access: health care providers working with patients; public agencies managing food support programs; nonprofit agencies addressing community health needs; experts developing local food systems; and community members advocating for the needs of their neighborhood. The power to mobilize change came from their ability and willingness to collaborate, to examine the question systemically, and to focus on the interactions of diverse systems.

A third lesson is the need for conveners capable of bringing together diverse constituencies to tackle multifaceted issues. Conveners serve as a catalyst for collaborative action and provide guidance and leadership. They may not have technical expertise in all or even any of the disciplines but their ability to create and maintain diverse partnerships enables the experts to work together in new ways. An ideal convener has resources to commit to the effort and a base of existing relationships on which to build. Additionally, the ability of a convener to engage in a long-term, sustained commitment to an issue affords great advantages.

Finally, this project highlighted the challenge and importance of translating clinical experiences into research and then into policy action. This translation process is complex, time-consuming, and non-linear. It requires the ability to develop and conduct a research project, and frame the issue for the policymaker as well as to coordinate the varied specialized functions and maintain overall direction and strategic purpose. Given its unique structure and mission combining disciplines and crossing traditional boundaries, the Connors Center is an example of an organization well-equipped for this translation work.

Next Steps

Food in the Hub is the beginning of a process to assess need and identify, implement, and evaluate strategies to direct the city's next steps towards improving access to affordable healthy food. This was the first time that Boston leaders from these four target areas had been brought together to consider how to best use our collective resources and expertise related to this issue.

Participants identified a multitude of strategies in each target area, and Brigham and Women's Hospital is in the process of working with its strategic partners to distill the information and distribute the major findings to all participants and to others. This initial report will be the blueprint for improving access to affordable healthy food in Boston.

The convening organizations, Brigham and Women's Hospital, the Boston Public Health Commission, and The Food Project, along with the City of Boston and other lead organizations, such as Boston Medical Center, are committed to continuing the work on this important issue, and will continue to work together to drive the process to improve access to affordable healthy foods across the city and consequently improve the health of women and their families in Boston.

Notes

The authors would like to acknowledge the significant contribution of Rachael Fulp, MPH, and former Director of the Center for Cardiovascular Disease in Women. Her insights and leadership considerably guided the project from research idea to policy action.

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