MASSACHUSETTS

Food is Medicine

THE WHY, THE HOW, AND LESSONS LEARNED

CASE STUDY

MARCH 2020

CHLPI CENTER for HEALTH LAW and POLICY INNOVATION HARVARD LAW SCHOOL

COMMUNITY SERVINGS FOOD HEALS

CHILDREN'S HealthWatch AT BOSTON MEDICAL CENTER

Introduction: A National Moment of Opportunity

Food insecurity and malnutrition are major drivers of poor health outcomes and rising health care costs globally. Even when experienced at mild levels, an extensive body of research demonstrates that food insecurity threatens health and achievement across the lifespan and is associated with increased healthcare utilization including inpatient and emergency care, chronic disease, surgeries, poor disease management, and drug costs.[1,2,3,4] Similarly, average hospitalization costs among malnourished patients are 24% higher than properly nourished patients, and readmission within fifteen days is nearly twice as likely.[5] A growing body of research demonstrates the ability of certain nutrition interventions to influence health outcomes, health care utilization, and health care costs (see Table 1). The healthcare community is increasingly recognizing these health and economic costs, and investing in systems and interventions that address and alleviate food insecurity and malnutrition.

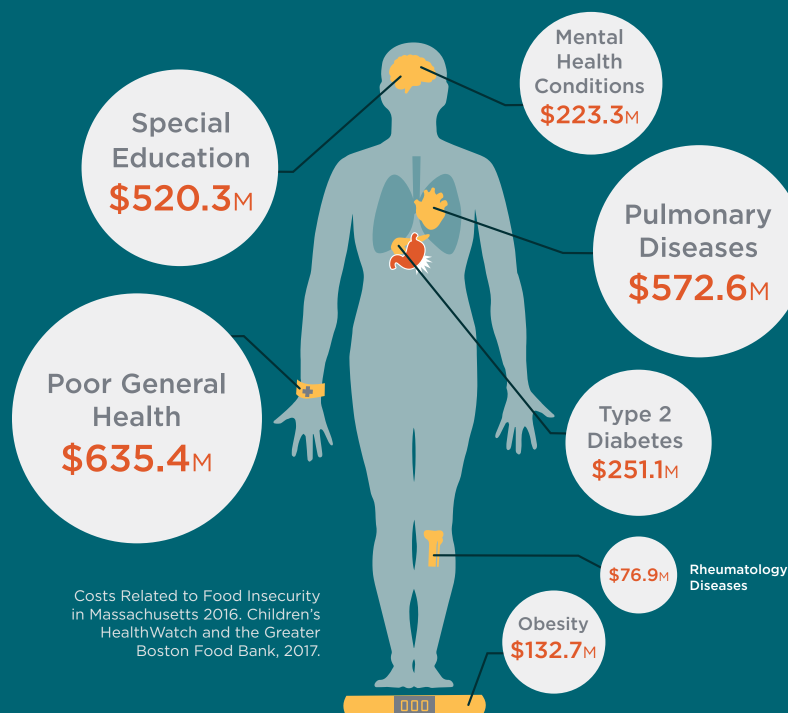


Table 1: Select Peer-Reviewed Food is Medicine Research

Peer-Reviewed Research	Results
MEDICALLY TAILORED MEALS: The most intensive Food is Medicine intervention, requiring a referral from a health care provider or health plan. These meals are designed by a Registered Dietitian Nutritionist based on a nutritional assessment to address the recipient's medical diagnosis or diagnoses. Typically they are prepared and home-delivered.	
Association Between Receipt of a Medically Tailored Meal Program and Health Care Use (2019).[6]	• In a retrospective, matched cohort study (sample size = 1,020 individuals) using the Massachusetts All-Payer Claims database, receipt of medically-tailored meal services (10 meals delivered weekly) was associated with 49% fewer inpatient admissions, 72% fewer admissions into skilled nursing facilities, and a 16% reduction in total health care costs.
Meal Delivery Programs Reduce the Use of Costly Health Care in Dually Eligible Medicare and Medicaid Beneficiaries, (2018).[7]	• In a retrospective, matched cohort study (sample size = 1,135 individuals) using the health care claims of a Massachusetts insurer administering a health plan for individuals dually eligible for Medicare and Medicaid, plan members who received medically tailored meals for 6 months had 50% fewer inpatient admissions and 70% fewer emergency department visits than similar patients not enrolled in the meal program ($p<.05$). • Researchers found an average net savings of $220 per patient per month (16% savings on total medical expenditures) after factoring in the costs of the medically tailored meals.
Comprehensive and Medically Appropriate Food Support is Associated with Improved HIV and Diabetes Health, (2017).[8]	• In a pre-post intervention study (sample size = 52 individuals), adherence to antiretroviral therapy for HIV patients increased from 47% at baseline to 70% ($p = 0.046$) at the end of the 6-month intervention. • Diabetes distress ($p < 0.001$) and perceived diabetes self-management ($p = 0.007$) improved for patients with type 2 diabetes after 6 months of medically tailored meals. • The study observed decreased depressive symptoms ($p = 0.028$) and decreased binge drinking ($p = 0.008$) at the end of the intervention for all diagnoses. • Fewer participants sacrificed food for health care ($p = 0.007$) or prescriptions ($p = 0.046$), or sacrificed health care for food ($p = 0.029$) once they were connected to medically tailored meals.
MEDICALLY TAILORED FOOD: Packages of non-prepared grocery items selected by a Registered Dietitian Nutritionist or other qualified nutrition professional as part of a treatment plan for an individual with a defined medical diagnosis. Recipients are typically capable of picking up the food and preparing it at home.	
A Pilot Food Bank Intervention Featuring Diabetes-Appropriate Food Improved Glycemic Control Among Clients In Three States, (2015).[9]	• In a pre-post intervention study (sample size = 1,020 individuals), participants in a 6-month medically tailored food intervention received diabetes-appropriate food, blood sugar monitoring, primary care referrals, and self-management support from a food bank. • Among participants with elevated HbA1c (at least 7.5%) at baseline, HbA1c improved from 9.52% to 9.04% ($p<.0001$). • Fruit and vegetable intake increased from 2.8 to 3.1 servings per day ($p<.001$), self-efficacy increased ($p<.0001$), and medication adherence increased ($p<.001$).
PRODUCE PRESCRIPTION/VOUCHER PROGRAMS: Vouchers for free or discounted produce, sometimes called "prescriptions," are distributed by health care providers to address a recipient's health condition and are redeemed at retail grocers, farmers' markets, or within Community Supported Agriculture programs.	
Participation in a Farmers' Market Fruit and Vegetable Prescription Program at a Federally Qualified Health Center Improves Hemoglobin A1C in Low Income Uncontrolled Diabetics, (2017).[10]	• In a pre-post intervention study (sample size = 65 individuals), a fruit and vegetable prescription program at a Federally Qualified Health Center led to decreased HbA1c levels in patients with uncontrolled type 2 diabetes living in a low-income neighborhood in Detroit. • Patients receiving produce prescriptions of $10 / week for 4 weeks at a clinic in Detroit had a decrease in HbA1c from 9.54% to 8.83% ($p=0.001$).

NUTRITION INTERVENTIONS IN A TRANSFORMING HEALTH CARE SYSTEM

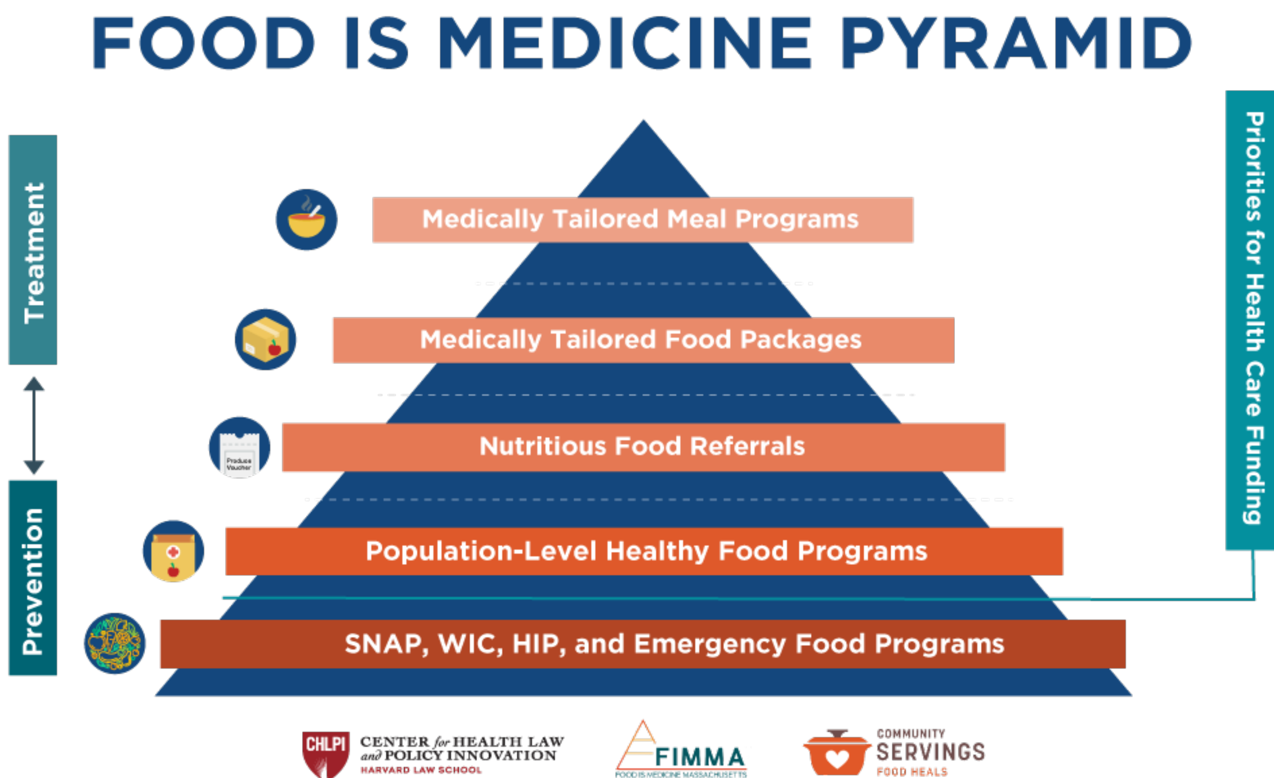
The recent shift in health system and provider focus on the social determinants of health (SDOH) demonstrates a pressing need to assess community and individual needs, and systematically identify evidence-based strategies that can address patients' food security and nutritional needs while driving down health care costs. Food is Medicine, an approach that addresses food insecurity and specific nutrition needs for individuals with diet-affected health conditions, encompasses services and health interventions that recognize and respond to the critical link between nutrition and disease. These include interventions that:

1. Provide food or support to obtain food that enables compliance with recommended dietary patterns or nutrition advice, and
2. Are linked to the health care system.

While Food is Medicine interventions are generally calibrated to meet an individual's level of need, they also encompass larger strategies undertaken by the health care system or by others in partnership with health care entities to prevent and alleviate food insecurity (see Figure 1). By addressing nutritional needs within the context of federal nutrition programs and health care and community resources, Food is Medicine interventions play an important role in preventing and/or managing chronic conditions and simultaneously address health care costs, patient food security, and health outcomes.

Despite strong evidence of the ability of Food is Medicine interventions to promote health outcomes and reduce health care costs, access remains limited throughout the United States. Furthermore, the majority of Food is Medicine programs are still small in scale and operate primarily on grants and charitable donations. However, given the growing interest and commitment of health systems to address health-related social needs in health care settings, Food is Medicine interventions have the opportunity to be adequately scaled and sustainably funded in a new era of delivery and payment reform.

Figure 1



Food is Medicine: Seizing the Moment in Massachusetts

In 2018, the health care landscape in Massachusetts was in a moment of transition. MassHealth, the Massachusetts Medicaid program, implemented a program redesign that enrolled members into seventeen Accountable Care Organizations (ACOs).[11] The ACO structure provides a unique opportunity to integrate Food is Medicine interventions into the state's Medicaid services as program requirements and financial incentives shift to better address the needs of MassHealth members and leverage community-based resources. Furthermore, as of January 2020, ACOs are eligible to receive "Flexible Services" funding that can be used to pay for services that respond to health-related social needs, including Food is Medicine interventions like medically-tailored meals, medically-tailored groceries, assistance in obtaining nutritious food like fresh produce, and more.

The Massachusetts Food is Medicine State Plan,[12] a 2-year statewide initiative led by the Center for Health Law and Policy Innovation at Harvard Law School (CHLPI) and Community Servings, a Boston-based not-for-profit that provides medically tailored home-delivered meals to individuals coping with illness, builds on the momentum of recent health and food systems change in the Commonwealth and across the nation by providing the data and research-based strategies necessary to systematically expand awareness of and access to Food is Medicine interventions throughout Massachusetts. The State Plan aimed to:

1. **Assess the current need for Food is Medicine interventions in Massachusetts;**
2. **Assess current access to Food is Medicine interventions in Massachusetts; and**
3. **Develop recommendations to scale up access to meet current need across Massachusetts.**

Informed by a Planning Council of representatives from key stakeholder groups, the State Plan brought together for the first time health care providers and payers, government, academic institutions, advocacy organizations, and community-based nutrition providers. The Plan was published in June of 2019, and Plan implementation was subsequently driven by a statewide coalition of former Planning Council members and other key players.

Implementation efforts to date have yielded:

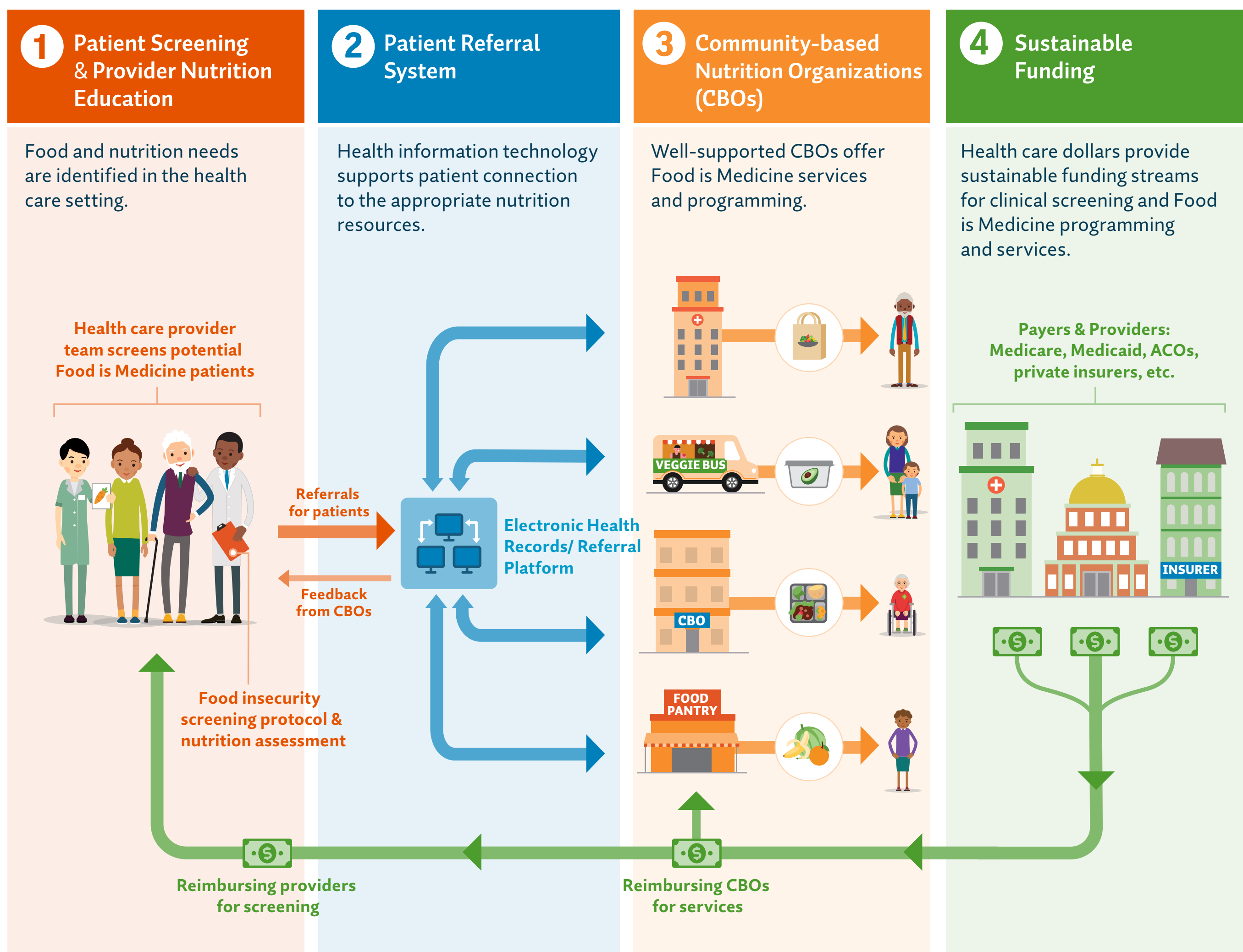
- The launch of three multi-sector Task Forces on: Provider Nutrition Education and Referral, Community-Based Organizations, and Food is Medicine Research;
- Legislation introduced in the Massachusetts House and Senate to create a state-funded Food is Medicine research pilot program;
- Progress toward realizing: a Food is Medicine Research Incubator, the creation of Nutrition & Referral Core Competencies for health care providers, and a comprehensive set of definitions and rigorous standards for Food is Medicine interventions in the state.

Major benefits of the State Plan include:

- Creation of shared framework and taxonomy for Food is Medicine within the State;
- A blueprint for scaled integration of food and nutrition interventions into the health care system through 15 targeted policy recommendations that call on government agencies, health care providers, health care payers, philanthropy, and CBOs to take specific actions to advance access to Food is Medicine interventions throughout the state;
- Statewide data on critical and chronic health conditions, food insecurity, transportation access, and Food is Medicine intervention availability collected, analyzed, layered, and mapped for the very first time;
- Identification of high priority municipalities, where access to Food is Medicine interventions is most critical and investment is most urgent;

- The creation of strong connections and collaborations between diverse stakeholders to advance Food is Medicine, including health care providers, CBOs, health care payers, municipal agencies, advocacy groups, food system reformers, and more;
- Consensus on the vision for a Massachusetts health system where food and nutrition interventions are fully integrated.

This case study provides an overview of the development of the Massachusetts Food is Medicine State Plan, with the goal of inspiring similar efforts in other states and regions. While this State Plan focuses on Food is Medicine interventions to address food insecurity and health-related nutrition needs, a similar model can be adopted to evaluate states' role in assessing and addressing food insecurity as well as other SDOH through evidence-based interventions.



MA Food is Medicine State Plan: How it Happened

BACKGROUND: GETTING STARTED

The Massachusetts Food is Medicine State Plan is the result of a collaboration between the Center for Health Law and Policy Innovation (CHLPI), a public interest law and policy center based at Harvard Law School, and Community Servings, a nonprofit organization providing medically tailored, home-delivered meals in Massachusetts. The two organizations had previously worked together on identifying opportunities for integrating medically tailored meals into health care financing. With the Massachusetts Food is Medicine State Plan, they committed to broadening their advocacy to include a wider range of nutrition interventions, such as produce prescriptions, and to developing a vision for a transformed health care system where food and nutrition interventions were a routine part of patient care. After committing to the project, the two organizations pursued funding from foundations with whom Community Servings had a previous relationship: the Blue Cross Blue Shield of Massachusetts Foundation and the DentaQuest Partnership for Oral Health Advancement. Both CHLPI and Community Servings leveraged previous funding commitments from other organizations to assist with State Plan Development.

THE PLANNING COUNCIL

Essential to the development of the State Plan was the establishment and involvement of a multi-sector Planning Council, which consisted of over forty representatives from health care systems, health insurers, community-based organizations, academic programs, and advocacy organizations from across the state. Members were identified as organizations and entities necessary to ensure deep substantive knowledge and expertise in informing the Plan and bring stakeholders from every region of the state to the initiative. Once established, the Planning Council met bimonthly to guide data-gathering, analysis, and strategic plan development to ensure that each step of the Food is Medicine State Plan process was grounded in the real needs, capacity, and experiences of stakeholders.

DATA COLLECTION METHODS

The State Plan gathered and analyzed the following data:

- Knowledge, attitudes, and beliefs about nutrition assessment and Food is Medicine interventions among health care providers, health care payers, and CBOs that offered nutrition services and supports;
- Screening and referral practices among health care providers;
- Funding sources of CBOs and payment practices of health care payers;
- Regional differences in demographics, resources, and community priorities;
- Information on the experience of Food is Medicine program participants;
- Rates of diet-related chronic illness, food insecurity, access to transportation, along with locations of Food is Medicine interventions across the state;

Stakeholder Surveys

CHLPI and Community Servings disseminated surveys uniquely targeted to three audiences: health insurers; health care providers; and community based organizations (CBOs) to assess the current need for and capacity to implement Food is Medicine interventions. Stakeholders were identified through input from the Planning Council and a state scan of actors already in or with potential to engage in the Food is Medicine space, and were contacted via email. CHLPI, Community Servings, and Planning Council members utilized their networks to disseminate the survey and reach various community and health system stakeholders. Planning Council dissemination through trusted networks was particularly important to the response rate. Those contacted were asked to complete and share the survey widely with their colleagues in an effort to reach as many people in the field as possible. Respon-

dents included 10 health insurers (providing representation from almost every payer participating in the state's Medicaid program or subsidized health insurance exchange), 101 health care providers (representing both individual providers and larger health care provider organizations like hospitals and community health centers), and 104 CBOs providing food and nutrition services. In a large, statewide effort, it can be challenging to ensure that sufficient data is gathered to provide a representative sample of relevant viewpoints. The State Plan initiative used its network to drive broad distribution of surveys and participation in listening sessions, but still may have missed some key voices. Developing a list of priority respondents early in the data-gathering process to guide follow-up outreach could help to alleviate this issue, better ensuring diverse representation.

Listening Sessions

The State Plan listening sessions were designed to gather feedback from community members and professionals experienced with or interested in Food is Medicine interventions, in addition to gathering details on the operation and funding of current MA-based Food is Medicine programs. Listening sessions were organized geographically across seven state regions, and hosted by Planning Council members located in the respective areas. This leveraged the clout and network of various Planning Council member organizations, and reduced transportation barriers for participants. Over a four-month period, eleven listening sessions were held with a total of 185 participants. Each session began with an overview of the State Plan project and then transitioned into small breakout groups to discuss and react to guiding questions. Each breakout group contained a designated note taker to capture and synthesize conversation. The majority of participants were healthcare providers, professionals from CBOs, and representatives from health insurers, while others included researchers, representatives from philanthropic organizations and local government officials. Many CBO respondents that indicated that they provided Food is Medicine services received follow-up calls to verify program details.

Program Participant Interviews

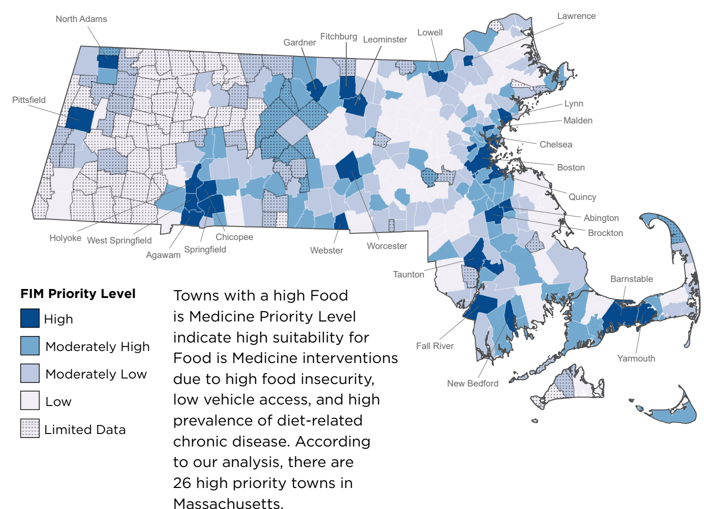
To ensure the perspectives of those who receive Food is Medicine interventions were represented, program participants were interviewed about their experiences and personal preferences regarding the services they received. Organizations that identified as offering Food is Medicine interventions from each region of the state were invited to assist in participant recruitment. In total, twelve participant interviews were conducted; participants received a $20 gift card to a local grocery store.

Geospatial Analysis[13]

To understand the landscape of Food is Medicine interventions across the Commonwealth, geographic information systems (GIS) software was used to map the need for these services against current access to Food is Medicine interventions. Informed by research experts and results from stakeholder surveys, listening sessions, and participant interviews, three factors were identified that indicated the need for Food is Medicine interventions: 1) a high level of food insecurity, 2) a lack of accessible and reliable transportation, and 3) a high burden of diet-related chronic diseases.

FOOD IS MEDICINE PRIORITY LEVEL ANALYSIS

MASSACHUSETTS 2018



Levels of food insecurity were determined by town using information from the 2016 Map the Meal Gap data report from Feeding America.[14] Household vehicle access data was derived from the American Community Survey 2012-2016 as an indicator of accessible and reliable transportation.[15] Relevant conditions that contributed to a high burden of diet-related chronic disease were identified through a review of scientific peer-reviewed literature, and focused upon conditions which 1) food insecurity play a role in causing, and/or 2) nutrition interventions play a role in treating.[16] Initial literature review results were then evaluated based on the statistical strength of the association between specific health conditions and food insecurity. The identified list of health conditions was cross-checked with available data from the Massachusetts Department of Public Health to determine burden/prevalence across the state. Additionally, the data included in the final analysis was limited by availability and compatibility with analysis tools. Overall, thirteen chronic condition were included in mapping: 1) HIV; 2) cardiovascular disease; 3) stroke; 4) diabetes; 5) obesity; 6) asthma; 7) depression; 8) lung and bronchus cancers; 9) colon and rectal cancers; 10) prostate cancer; 11) breast cancer; 12) ovarian cancer; 13) leukemia.

Food insecurity, vehicle access, and chronic disease burden scores for each town were added through a final weighted sum analysis to generate Food is Medicine Priority Scores for each town. Within the model, food insecurity and chronic disease burden scores were weighted twice that of vehicle access scores, because they are most reflective of the need for Food is Medicine interventions. Sums for each town were categorized using the Jenks natural breaks classification method. This analysis indicated four Food is Medicine priority levels: low, moderately low, moderately high, and high priority.

In addition to the three indicators described above, access to Food is Medicine programs and food insecurity screening across the state were mapped to demonstrate the current availability of services against areas of need. This was informed by self-identified Food is Medicine programs reports in the surveys and listening sessions, and verified/adjusted through CBO outreach.

A Blueprint for Change: The State Plan Launch and Implementation

THE STATE PLAN RECOMMENDATIONS

Results from stakeholder surveys, listening sessions, and program participant interviews demonstrated a need for change across five areas to systematically improve access to Food is Medicine interventions: **1) provider knowledge and screening: identifying food and nutrition needs in the health care setting; 2) patient referral and connections: supporting patient connection to appropriate resources; 3) high-quality, appropriate services available in the community: supporting community-based organizations, food is medicine services, and programming; 4) sustainable funding for food is medicine interventions; and 5) systems transformation and leadership engagement.**

The State Plan team identified 15 actionable recommendations, organized across the 5 focus areas above, to improve access to Food is Medicine interventions in Massachusetts. Feedback was solicited on the recommendations at Planning Council meeting and individual Planning Council member calls were held to discuss and approve each recommendation. Each recommendation identifies a decision maker and specific requested actions. Recommendations can be found on pages 17-39 of the State Plan.

To raise the profile of the Plan and set the stage for implementation, the State Plan was officially launched at the Massachusetts State House, at a public event hosted by two state legislative champions.

IMPLEMENTATION: STATEWIDE COALITION

To ensure success and implementation, the State Plan team created Food is Medicine Massachusetts (FIMMA), a coalition comprised of three Task Forces and a Steering Committee. Members of the Planning Council were invited to become part of the Coalition's Steering Committee, with invites extended to other organizations and in-

dividuals with special expertise or knowledge. With the development of the Task Forces, organizations outside of CHLPI and Community Servings took on leadership roles within the Food is Medicine Coalition. Each Task Force is charged with driving toward the vision of an integrated health system outlined in the State Plan, but can set their own missions and goals, focused on 1) Provider Nutrition Education and Referral; 2) Food is Medicine Community-Based Organizations; and 3) Food is Medicine Research. The Steering Committee and Task Force chairs comprise the voting body of the Coalition. Each Task Force meets monthly to discuss and contribute to short and long-term goals of the State Plan. The Coalition meets quarterly. Visit the coalition's website to learn more: FoodisMedicineMA.org.

Lessons Learned

- **The State Plan process set the stage for implementation success.**

  In the 18-month data gathering and analysis phase, critical relationships were created (especially among the Planning Council), credibility and trust were established, and input and engagement from stakeholders in every region of the state was solicited and incorporated into the final product. This meant that following the Plan's launch, a diverse and motivated group was primed to drive implementation of the recommendations. Food is Medicine Massachusetts, the coalition that grew from the Planning Council and State Plan leadership team, has been highly active on multiple initiatives since the plan launched in June 2019.

- **The composition of the Planning Council is critical.**

  Planning Council members provided an incredible amount of expertise and resources to the State Plan initiative. Members disseminated surveys through their networks, provided space for listening sessions in their communities, curated invite lists to listening sessions and public events, and introduced other key stakeholders to the concept of Food is Medicine. Members spoke on webinars, at public events, at public hearings on relevant legislation, and generally served as Food is Medicine ambassadors throughout the state. The caliber and enthusiasm of the Planning Council was essential to the reception and uptake of the State Plan.

- **Defining Food is Medicine as related to, but ultimately distinct, from broader food and health system reform was important.**

  "Food is Medicine" is a term that has been used in a variety of contexts. In order to ensure that the State Plan recommendations were specific enough to yield concrete change, the Plan defined Food is Medicine interventions narrowly. While the State Plan team and Food is Medicine Massachusetts broadly support, and in some cases advocate for, complementary food system and health system reforms, the Plan and the coalition prioritize and use limited resources to increase access to interventions that (1) provide food or food support (such as vouchers) that enables the recipient to comply with diet recommendations from a health care provider, and (2) have a nexus to the health care system.

- **Sustaining an active coalition is resource intensive.**

  Following the State Plan launch, the two-organization leadership team and bi-monthly Planning Council transitioned to a much broader coalition, three Task Forces, and a Steering Committee. Supporting and coordinating each of these entities while engaging new stakeholders and pursuing State Plan goals requires a significant investment of financial resources and, especially, time. The data gathering and launch of the State Plan were well-supported by a group of committed funders, but sustained implementation progress on the back end will require additional support.

Reflections for Other States and Regions

- **The definition of Food is Medicine can be tailored to fit the priorities and culture of other geographies.**

  In Massachusetts, where the health care system was in a state of transformation and so many CBOs already offer extremely rigorous nutrition interventions, the State Plan team felt it was appropriate to focus the Plan on increasing access to nutrition interventions with a nexus to the health care system. In other states, the focus could be expanded or shifted to include more community-level interventions or food system reforms. The process of pulling together a high-quality Planning Council and working to unify messages and goals will be valuable even if replicated with modifications.

- **Bring health system and data experts to the table early.**

  Health system reform takes a long time to tee-up. The State Plan group came together for the first time in 2017, when Massachusetts had already received federal approval for a major overhaul of its Medicaid program that would create unprecedented opportunities to use Medicaid dollars on nutrition interventions. In states where those opportunities may not already be on the horizon, the group will need to identify the right paths forward and lay the groundwork for change as early as possible. Obtaining and analyzing state data also takes time, and the group will want to ensure that any necessary data requests are made early in the process.

- **Solicit feedback from the broader community early on about who is not at the table.**

  Working with a relatively small and invite-only Planning Council has many advantages, but means that the initiative is vulnerable to collective blind spots. The State Plan initiative solicited and input a group that was diverse geographically and across sectors, but still missed information from key populations, including; individuals who were incarcerated, individuals in long-term care facilities, community college students experiencing food insecurity, and individuals experiencing addiction or living with substance use disorders. Food is Medicine Massachusetts must now work to engage those stakeholders.

- **Cultivate a community of funders who commit to supporting Plan development and implementation.**

  The value of a State Plan is in its implementation – in whether or not it effects change. The Massachusetts State Plan has ambitious goals that will require a wide variety of stakeholders to work in tandem. This requires leadership that is well-resourced, support for convenings and meetings, and tangible incentives for continued engagement from coalition members. Robust support for the implementation phase of the Plan is just as critical as support for its development.

Conclusion

As the Centers for Medicare & Medicaid Services and the broader health care community continue to demonstrate national support and financial opportunity to address SDOH in health care settings, it is essential that Food is Medicine and other interventions are expanded and implemented to meet patient need. The Massachusetts Food is Medicine State Plan and this case study serve as a model for how states can leverage this opportunity to build a system that reliably identifies individuals who are food insecure, connects them to appropriate Food is Medicine interventions, and supports those interventions via sustainable funding.

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16. See the Massachusetts Food is Medicine State Plan website for more information regarding the Food Insecurity and Chronic Health Conditions Literature Review under Supplemental Information.

FOR MORE INFORMATION

The full Food is Medicine Massachusetts State Plan, results, and resources can be found online at: **FoodIsMedicineMA.org**.

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