



NUTRITION EDUCATION FOR PHYSICIANS AND HEALTH PROFESSIONALS: Policy Opportunities for Massachusetts

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Executive Summary

Nutrition plays a critical role in the prevention and treatment of many chronic diseases, and diet is one of the most significant risk factors for disability and premature death in the United States. Leading causes of death include heart disease, cancer, stroke, and diabetes—all of which have a high correlation to poor diet and nutrition. Yet despite the overwhelming evidence linking food with health, nutrition receives little attention in medical school and throughout the education of physicians.

The lack of comprehensive nutrition education for physicians represents a missed opportunity for doctors to promote good health, illness prevention, and treatment of chronic diseases. Physicians have the trust of their patients, and therefore have the opportunity to influence patient behavior. Without adequate nutrition education, however, physicians are less likely to recognize the importance of dietary problems, include nutrition assessments during patient exams, communicate accurate basic nutrition advice, or be equipped to provide referrals as needed. Nutrition education should therefore be an essential component of all physician training.

Luckily, many opportunities exist to increase the basic knowledge level of physicians about the relationship between food, diet, and health.

This issue brief maps the potential opportunities, based on current state policies, that Massachusetts could take to ensure that physicians trained and practicing in the state are able to prevent, address, and treat diseases that have a link to diet. This issue brief is a follow-up to FLPC's September 2019 report, *Doctoring Our Diet: Policy Tools to Include Nutrition in U.S. Medical Training*, which presents a range of recommendations about how to best address the lack of diet-related education for physicians and health care professionals nationally.¹ The issue brief was inspired by and informed by the work of the Food is Medicine Massachusetts (FIMMA) Coalition's Provider Nutrition Education and Referral Task Force, which similarly aims to build capacity to better prepare health professionals in Massachusetts to address questions related to food, diet, and nutrition.²

This issue brief maps the potential opportunities that Massachusetts, given its current legislative

goals and state policies, could take to ensure that physicians trained and practicing in Massachusetts are able to prevent, address, and treat diseases that have a link to diet.

This issue brief is of particular significance in light of the COVID-19 pandemic, as those with diet-related conditions, such as heart disease and diabetes, have been especially impacted by the coronavirus.³ In particular, racial and ethnic minorities, who were already experiencing disparities in prevalence of diet-related disease, have faced disproportionate fatalities from COVID-19.⁴ More broadly, diet quality has a strong relationship to immune function,⁵ and the pandemic has caused rising rates of food insecurity, which is associated with lower diet quality.⁶ The need for a healthy and equitable food system is more salient than ever.

This issue brief offers a range of opportunities to increase physician and health professional training on diet and nutrition. Given the strain on the health care sector during the COVID-19 pandemic, immediate action may not be feasible for some of the policy opportunities described in the brief. However, the pandemic crisis further highlights that fighting diet-related and chronic disease is of utmost importance. Several of the policy opportunities identified in the brief could be actionable in the near term, and these and other options are described in more detail throughout the brief. **In particular, the following options are most feasible, cost-effective, and actionable in the short term:**

Pass a Resolution

The Massachusetts legislature could pass a resolution urging medical schools (also known as undergraduate medical education or UME) and residency/fellowship programs (also known as graduate medical education or GME) in the state to offer a baseline level of nutrition education. The resolution could acknowledge the impact of diet-related diseases on COVID-19 and highlight the lack of nutrition education at all levels of medical education. It could then call upon the state or city

government agencies to raise awareness of the responsibility of health care professionals to promote healthy diet and urge health professional training programs to consider increasing class and clinic hours devoted to nutrition education after the pandemic crisis subsides.

Create Recognition Awards for Programs that Invest in Nutrition Education

The Massachusetts Department of Public Health could create an award of recognition, either monetary or non-monetary, for physician and other health professional training programs that innovate in providing excellent nutrition education to their trainees.

Issue a Nutrition Education Challenge

The Massachusetts Department of Public Health could create a “challenge” program to encourage UME and GME programs to place greater emphasis on nutrition education. The department could issue a challenge to in-state UME and GME programs to commit to increasing their nutrition-related curricula and programs. Programs that accept the challenge would then report on their progress and receive technical assistance from the department overseeing the program.

Offer Technical Assistance

The State Legislature could create an office within the State Department of Health to improve nutrition-related programs and curricula in health professional training programs. Once created, this office would be dedicated to researching and promoting effective existing nutrition-related curricula, establishing core competencies in nutrition for medical schools and various GME subspecialties, and disseminating information on best practices in nutrition education to UME and GME programs. It could circulate data on the impact of including diet and nutrition in the medical curriculum and act as a clearinghouse for information about existing initiatives and available curricular offerings. As an alternative to creating an office, the State Legislature could direct an advisory group to manage physician nutrition education

resource centers that would provide technical assistance to UME and GME programs.

Create Nutrition Education Licensing Requirements

The Massachusetts Board of Registration in Medicine, the state regulatory body that licenses Massachusetts physicians, can amend its regulations to create nutrition education requirements as a part of the licensing of Massachusetts physicians. These changes could be passed now but go into effect in several years, to avoid causing strain in the short-term. The Board of Registration in Medicine can require physicians in the state to take nutrition education courses regularly as part of their continuing medical education requirements, or require one-time training in nutrition and nutrition counseling for first-time full licensure in the state.

INTRODUCTION

The Harvard Law School Food Law and Policy Clinic (FLPC), established in 2010, serves partner organizations and communities by providing guidance on cutting-edge food system issues while engaging law students in real-world pressing legal and policy issues to make the food system healthier, more sustainable, and more equitable.

FLPC recognizes that these solutions require a holistic approach, one which acknowledges the integral relationship between food and health. For the past several years, FLPC has worked with the Nutrition Education Working Group, a cohort of faculty and student leaders in nutrition, medicine, and policy from Harvard T.H. Chan School of Public Health, Harvard Medical School, Northwestern University, and the non-profit Gaples Institute, among others, to map out opportunities to educate and engage physicians to help improve preventive health and address the increase of diet-related disease.

This collaboration culminated in the publication of a report in fall 2019, *Doctoring Our Diet: Policy Tools*

to Include Nutrition in U.S. Medical Training, which presents a range of recommendations about how to best address the current lack of diet-related education for physicians and health care professionals nationally.⁷

In addition to opportunities for federal action, FLPC identified several state recommendations in the *Doctoring Our Diet* report. The current issue brief is meant to map the potential opportunities that the state of Massachusetts, given its current legislative goals and state policies, could take to become a leader in ensuring that physicians trained and practicing in Massachusetts are able to prevent, address, and treat diseases that have a link to diet. The issue brief was inspired by and informed by the work of the Food is Medicine Massachusetts (FIMMA) Coalition's Provider Nutrition Education and Referral Task Force, which similarly aims to build capacity to better prepare health professionals in Massachusetts to address questions related to food, diet, and nutrition.⁸

THE MISSED OPPORTUNITY TO FIGHT DIET-RELATED DISEASES

Diet is the most significant risk factor for disability and premature death in the United States. Heart disease, cancer, stroke, and diabetes—all highly correlated to diet—are among the leading causes of death.⁹ We frequently turn to physicians and health care professionals to help us reduce risk of these diet-related diseases, but—unbeknownst to patients—the vast majority of physicians report feeling wholly unqualified to provide advice on food, diet, or nutrition.¹⁰ The general public considers physicians to be among the most credible sources for accurate, up-to-date guidance about diet and food, despite the fact that many physicians lack the training and knowledge to confidently take on this role.¹¹ In fact, 90% of surveyed physicians reported minimal to no educational training regarding nutrition, although 95% believed that it was their personal responsibility to do so.¹² The

missed opportunity to train doctors on nutrition is evident at every stage of medical education:

Medical School

Medical school, referred to formally as “undergraduate medical education” (UME) is the first stage of medical education. United States medical schools offer an average of 19 hours total on nutrition education over four years, much of which is devoted to non-clinical topics like biochemistry.¹³ Additionally, the Liaison Committee on Medical Education (LCME), the primary accrediting body for U.S. medical schools, does not mention nutrition education in its medical school accreditation standards.¹⁴ As a result of this lack of nutrition education at the medical school level, new physicians fail to understand the importance of nutrition: a study found that while 72% of students entering medical school thought that nutrition counseling would be highly relevant in their practices, less than half maintained this view by graduation.¹⁵

Residency/Fellowship

Residency and fellowship training is known as “graduate medical education” (GME). This stage of medical education includes both clinical and didactic training requirements of physicians in their chosen specialty areas (i.e. internal medicine, pediatrics, surgery) as well as later subspecialty training (i.e. cardiology, gastroenterology, cardiac surgery). The national accrediting body for GME programs, the American Council of Graduate Medical Education (ACGME), currently does not require competency in diet and nutrition for accreditation of GME programs. In fact, ACGME fails to include any reference to “food,” “diet,” or “nutrition,” in the Common Program Requirements (which apply to all GME programs) or most Specialty Requirements for residents or fellows.¹⁶

Step and Board Exams¹⁷

Prospective physicians must take three medical licensing “Step” exams in order to become licensed physicians: two during UME and the third during GME.¹⁸ Medical students must pass all three Step

exams in order to continue with their medical education. These exams are co-sponsored by the National Board of Medical Examiners (NBME) and the Federation of State Medical Boards (FSMB).¹⁹ In addition to the Step tests, most physicians opt to take a specialty-specific Board exam after they complete residency. By undergoing this voluntary testing and evaluation process, physicians can earn Board certification.²⁰ The process is managed by the specialty-specific member boards of the American Board of Medical Specialties (ABMS).²¹ Both the Step and Board exams are generally devoid of questions that will test whether a physician understands and can advise on general prevention of diet-related diseases and promotion of a healthy diet.

Continuing Medical Education

States generally set requirements as to the number of hours and topic areas in which physicians and other health care professionals must take continuing medical education (CME) courses in order to retain licensure. To date, no state requires physicians to take Continuing Medical Education courses in nutrition. However, New York²² and the District of Columbia²³ have pending bills to create such a requirement, and California law encourages, but does not require, physicians to take nutrition-related CMEs.²⁴ Additionally, beginning in 2020, regulations in the District of Columbia require that physicians and other health professionals complete at least 10% of their required total continuing education hours in topics identified as “public health priorities,”²⁵ one of which is nutrition and obesity prevention.²⁶

WHY THE STATE SHOULD ACT

The state of Massachusetts has long demonstrated a strong commitment to public health and preventive health, and has exhibited its willingness to invest in nutrition and healthy food access. For example, in 2018 the Massachusetts Food Trust Program was created to provide loans, grants, and business assistance for the purpose of increasing

access to healthy food in low-income areas.²⁷ Beginning in January 2020, Massachusetts adjusted part of its MassHealth Medicaid known as its “flexible services” program to provide nutrition support to MassHealth members who have been identified as food insecure.²⁸ Additionally, Massachusetts has budgeted \$6.5 million for its Healthy Incentives Program (HIP) for fiscal year 2020.²⁹ HIP rewards Supplemental Nutrition Assistance Program (SNAP) recipients with extra benefits when they use SNAP to purchase fruits and vegetables at approved farmers markets, mobile markets, and community supported agriculture programs.³⁰

Massachusetts is a leader in health care and medical innovation, from the discovery of a smallpox vaccine and the first surgical procedure performed with anesthesia,³¹ to becoming the first state in the country to set a goal of universal access to health care in 2006.³² The state remains a leader in the field of medical training, both in terms of sheer number of residents and quality of education. The state is home to four medical schools: Boston University of Medicine, Harvard Medical School, University of Massachusetts Medical School (hereinafter UMass) and Tufts University School of Medicine. At the GME level, the state hosts 25 institutions that sponsor 166 specialty programs and 300 subspecialty programs.³³ With only 2% of the U.S. population but 5% of U.S. medical trainees (5,687 residents in 2018), the state boasts world-renowned medical training programs and provides training to a disproportionate share of physicians in the United States.³⁴ Massachusetts consistently ranks among the 10 states with the largest number of teaching hospitals and medical residents, and boasts some of the top ranked medical schools in the nation.³⁵

While Massachusetts has recognized the importance of nutrition and healthy food access, the state still suffers from the burden of diet-related diseases. Between 1993 and 2015, the percentage of Massachusetts residents with diabetes more than doubled—from 3.9% to 8.9%.³⁶ Heart disease

is one of the leading causes of death in Massachusetts, second only to cancer.³⁷ Additionally, 35.6% of adults in the state are overweight and 23.3% are obese.³⁸ Massachusetts thus has a strong incentive to take further preventive measures to address the rising prevalence and cost of diet-related diseases.

Accordingly, Massachusetts is well-positioned to provide a national model and nationwide impact by investing in nutrition education for physicians. This investment would align with the state’s demonstrated commitment to the health of its residents and to leading innovation in health care and medical education. Well-trained medical professionals can better assist patients in preventing and managing diet-related diseases, which can result in significant long-term cost savings.³⁹ Health care reform legislation pending in Massachusetts would create the perfect opportunity for prioritizing nutrition education in medical and health professional training.⁴⁰ Governor Charlie Baker recently introduced legislation to overhaul the Massachusetts health care system, emphasizing the need to prioritize primary care and to control health care costs.⁴¹ Increasing nutrition education and training for physicians can complement these goals, as training health professionals in diet and nutrition is likely to reduce health care costs due to chronic disease in the long term.

Beyond the health care cost savings, the people of Massachusetts would benefit greatly from ensuring that physicians trained in the state are equipped with basic knowledge of nutrition. The majority of physicians who undertake their residency in Massachusetts practice in the state⁴² and many Massachusetts medical school graduates also choose to practice in the state, so changing the medical education offered in Massachusetts will affect many of the state’s practicing physicians. Physicians equipped with basic knowledge about diet will be able to recognize when and how nutrition can optimize health outcomes for patients, provide meaningful referrals to dietitians

and nutrition professionals when necessary, communicate appropriate and practical preventive health guidance, and provide evidence-based nutrition advice in response to patient questions.⁴³ These changes can improve the health outcomes, and ultimately the lives, of Massachusetts patients.

POLICY OPPORTUNITIES

Most of the following recommendations are adapted from the FLPC's September 2019 *Doctoring our Diet* report.⁴⁴ A number of recommendations suggested in that report are not included here, as they are more appropriate for the federal government or private actors.⁴⁵ Rather than focusing on those suggestions, this report suggests changes that the state of Massachusetts can undertake unilaterally. It should also be noted that UME and GME programs can and should make changes to their individual institutions without any policy changes; this issue brief, however, focuses on the policy changes that will impact the state as a whole. Proposed changes could be tacked onto Governor Baker's recently introduced health care bill (H. 4134),⁴⁶ included in the annual budget process, or introduced as independent legislation.

A. Funding and Financial Incentives

Governments at all levels have a strong incentive to support nutrition education because they generally bear much of the costs associated with diet-related illness.⁴⁷ Massachusetts in particular pays for increased health care costs largely through MassHealth, which is a combination of Medicaid and Children's Health Insurance Program. In fiscal year 2019, MassHealth cost the state \$8.38 billion or 24% of total state spending.⁴⁸ Combined federal and state spending on the program increased more than 30% from 2014 to 2018,⁴⁹ and it has more than doubled since 2007.⁵⁰

Training health professionals in diet and nutrition will ultimately help to reduce health care costs in the long term, as well-trained medical professionals can better assist patients in preventing and

managing diet-related diseases by including nutrition assessments during patient exams, offering accurate and culturally appropriate basic nutrition advice, or providing referrals to dietitians. Further, as the practice of screening patients for food insecurity increases as recommended by professional organizations or required by state policies, conversations about diet and nutrition are becoming more common between patients and providers, necessitating training for physicians to provide appropriate guidance. Providing new financial resources for this training may be challenging, especially when the change requires developing new grants or allocating incentive payments. However, small investments up front to reduce larger health care costs in the long term can provide a strong justification for new spending.

There are three main ways that Massachusetts could use its financial leverage to encourage physician and health professional training programs to increase education about diet and nutrition: first, Massachusetts can **provide Medicaid funds or other funds for GME programs and condition this support on providing a specified level of nutrition education**; second, Massachusetts can **offer grants** to UME and GME programs to create or improve nutrition education content; third, Massachusetts can **provide financial incentives to its public medical school, UMass Medical School**, based on nutrition education benchmarks.

These recommended changes could all occur through the state legislature's annual budget process, during which the Governor and both houses of the state legislature submit their own budget recommendations.⁵¹ Both the state legislature and the Governor have significant power to change state appropriations: the state legislature drafts the final budget, but the Governor is both the first party to suggest a proposed budget and the last party to approve the legislation.⁵² Thus, these recommended changes could be spearheaded by either the executive or the legislative branch.

Increase State Funding of GME, Conditioned on Meeting Nutrition Education Benchmarks

GME programs are good targets for policy initiatives because they are reliant on government funding. The federal government is the largest provider of GME funding, contributing nearly \$15 billion annually, mostly through Medicare.⁵³ Although Massachusetts does not direct those funds, the second-largest source of funding for GME is Medicaid,⁵⁴ a joint federal-state program.⁵⁵ The federal government does not require states to support GME programs with Medicaid dollars,⁵⁶ but in 2018, forty-two states and the District of Columbia allocated a portion of their Medicaid funds to GME.⁵⁷ Massachusetts funded GME through MassHealth until 2010, when it ended its Medicaid GME funding as a cost-saving measure.⁵⁸

Massachusetts can reinstate its MassHealth GME funding and tie this funding to meeting nutrition education-related benchmarks. It could then assign a supervisory body to oversee the state's GME funds and ensure GME programs meet their benchmarks. A similar suggestion was made in 2013, after the Massachusetts legislature authorized a special commission to "examine the economic, social and educational value" of GME and to "recommend a fair and sustainable model for the future funding" of GME.⁵⁹ The Special Commission's report recommended increasing Massachusetts' funding for GME and tying that funding to performance benchmarks.⁶⁰ The suggested performance benchmarks included the training of physicians in specialties where there are physician shortages, retention rates of physicians within the state, and other "quality measures."⁶¹

The report also recommended that a "specific entity," such as an advisory committee organized by the Health Care Workforce Center, be given "clear responsibilities" related to GME such as engaging in oversight over the distribution of state GME funding and communicating about the importance of GME.⁶² Nutrition education benchmarks were not among the report's listed suggestions, but they could be specifically included in the list of "quality

measures" required for program funding. Education in nutrition and diet is merited as a quality measure for Medicaid GME funding, both because Medicaid enrollees are severely impacted by diet-related diseases⁶³ and because Medicaid enrollees would benefit from seeing physicians who are trained to screen for food insecurity and provide referrals to nutrition assistance programs when necessary, as well as respond to basic nutrition questions.

Although the Special Commission's report did not lead to the reinstatement of MassHealth GME funding, the possibility of doing so has been actively being considered by the state legislature. In 2019, bills that would require MassHealth to fund graduate medical education were introduced in both houses of the legislature.⁶⁴

Even if Massachusetts decides not to fund GME through MassHealth, Massachusetts can incentivize GME programs to meet nutrition education benchmarks by placing conditions on other funding mechanisms. Massachusetts currently allocates a modest amount of the state budget to a small number of qualifying GME programs, with a small appropriation for GME training in teaching community health centers.⁶⁵ Where possible, these expenditures can be conditioned upon meeting nutrition education benchmarks.

Massachusetts can also follow other states in funding GME through alternative methods. For example, Minnesota funds GME through its Medical Education and Research Cost (MERC) trust fund, which is funded by a per-pack cigarette tax, in addition to a carveout of funds from its state and federal Medicaid funds.⁶⁶ Texas has created a number of programs to fund GME in targeted ways through the Texas Higher Education Coordinating Board (THECB),⁶⁷ such as a \$157 million grant program to encourage the expansion of GME programs in the state.⁶⁸ Alternatively, the state of New York levies a tax on in-state commercial insurers and puts the funds into a "professional education pool" that provided funding for New York GME programs until its budget crisis in 2009.⁶⁹

Massachusetts can fund GME programs using similar methods, and then condition these funds upon providing competency in nutrition education and meeting other quality benchmarks.

Create a Nutrition Education Grant Program for UME and GME Programs

The Massachusetts state legislature may prefer to invest in grant programs that are aimed at increasing nutrition education for physicians. Such grant programs could provide funds for UME and GME programs that invest in nutrition curriculum, nutrition-related research, or the hiring and training of nutrition education faculty. Compared to other financial incentives, grants would infuse money in a more targeted manner towards a smaller number of programs. The programs receiving these grants would ideally become models for other programs on how to build their own nutrition education infrastructure. For example, Texas has created a grant for GME programs that provide training to trauma care physician residents and fellows.⁷⁰ Massachusetts could design a similar grant that would go specifically to medical schools that offer nutrition education, or residency programs in relevant GME specialties such as pediatrics that offer training in nutrition counseling. A national model is the American Medical Association's Reimagining Residency Initiative, which provides \$15 million of total grant funding to 11 UME and GME programs to support projects that "provide meaningful and safe transitions" from UME to GME.⁷¹

The Massachusetts legislature could establish a grant program by direct appropriation through the budget process, or through creating a trust fund. Massachusetts enacts some health reform policies by spending through trust funds, which are created by statutes.⁷² In fiscal year 2013, Massachusetts spent approximately \$2 billion in health-related trust funds outside of the annual appropriations process. These funds are sometimes supported by transfers authorized by annual appropriations, and other times by revenue that goes directly into funds, such as revenue from specific taxes.⁷³ Either

way, the administrators of the trust funds can spend the money in the funds in ways designated by the funds' authorizing statutes without further legislative action.⁷⁴

The Massachusetts Department of Public Health could choose to use funds from its Public Health Grant Trust Fund⁷⁵ to provide grants for UME and GME programs for nutrition education-related projects. Alternatively, the Massachusetts legislature could amend the authorizing statute for one of other the relevant trust funds, such as the Prevention and Wellness Trust Fund (which is currently unfunded),⁷⁶ to authorize grant funding for this purpose, or it could establish a new trust fund that would provide nutrition education-related grants.

Provide Financial Incentives to the University of Massachusetts Medical School

Out of the UME programs in the state, Massachusetts has one public medical school: the University of Massachusetts (UMass) Medical School. UMass has 55 accredited GME programs⁷⁷—a significant portion of the state's 300 programs⁷⁸—and it trains over 600 residents and fellows.⁷⁹ Massachusetts can use targeted financial incentives to encourage UMass to invest in nutrition education.

Although UMass is only one school, these incentives could be impactful because they improve the education of graduates likely to practice in Massachusetts, and also because they set an example that states across the country can follow with respect to their own public medical schools. The training offered at UMass disproportionately affects the treatment that Massachusetts patients receive, because the majority of physicians who undertake their graduate medical education in Massachusetts practice in the state.⁸⁰ Many Massachusetts UME students also choose to practice in the state, and at UMass Medical School's UME program this is especially likely, as the vast majority of students are from the state.⁸¹

\$58 million of state funds are appropriated to the University of Massachusetts Medical School.⁸² Massachusetts could offer UMass a small monetary incentive on top of existing funding for complying with certain conditions in its UME program, such as providing a baseline amount of nutrition education. To make a stronger statement, Massachusetts could require UMass to offer a certain baseline level of nutrition education in order to receive *any* state funds. Given the massive amount of state funds infused into UMass Medical School, any curricular requirement would be certain to be implemented. Curricular change at UMass would ensure a large proportion of Massachusetts-trained physicians understand the importance of diet and nutrition to overall health.

B. Recognition Incentives

Beyond financial incentives, Massachusetts can play a symbolic or signaling role in encouraging health professional training programs to provide nutrition education opportunities. Although they are less likely than financial incentives to spur significant curricular changes in UME and GME programs, the recommendations in this section come at little cost to Massachusetts and thus could more easily be accomplished.

There are three recognition incentives that Massachusetts can undertake: **passing a resolution** in the state legislature urging physician and health professional training programs to provide nutrition education, **creating recognition awards** for UME and GME programs that innovate in the field of nutrition education, and **creating a curricular challenge** to incentivize investments in nutrition education.

Pass a Resolution in the State Legislature

The Massachusetts legislature could pass a resolution urging medical schools and GME programs in the state to offer nutrition education. Resolutions are not binding, but express an opinion of the sentiment of one or both branches of the legislature.⁸³ For example, a resolution currently being considered by the Massachusetts House of

Representatives expresses the sentiment that students from Massachusetts should have access to debt-free higher education at public colleges, and announces that the House of Representatives supports efforts to enact legislation that ensures all students have access to debt-free higher education.⁸⁴

A resolution addressing the importance of nutrition education for health professionals could similarly send a meaningful signal to medical schools. The resolution could begin by using statistics to highlight the lack of nutrition education at all levels of medical education, explaining the impact of this lack of education on patient care and health care costs in Massachusetts, and reminding health professional training programs of the various ways in which Massachusetts provides them with funds. With this foundation in place, the resolution could then urge health professional training programs to require nutrition education, call for policy changes like the ones recommended in this issue brief, and call upon the Massachusetts government to raise awareness of the responsibility of health care professionals to promote healthy diets.

Create Recognition Awards for Programs that Invest in Nutrition Education

The Massachusetts Department of Public Health could provide an award of recognition, either monetary or non-monetary, for health professional training programs that innovate in providing excellent nutrition education to their trainees. The Massachusetts state government already engages in recognition programs, such as the Manuel Carballo Governor's Award for Excellence in Public Service, which recognizes state employees who "exemplify the highest standards of public service" through exceptional leadership, creativity, and innovation.⁸⁵

In designing a nutrition education recognition award, the Massachusetts Department of Public Health can look to a number of models. The U.S. Department of Health and Human Services offers "Health Care Innovation Awards" of between \$1

million and \$30 million to organizations that “implemented the most compelling new ideas to deliver better health, improved care and lower costs to people enrolled in Medicare, Medicaid and Children’s Health Insurance Program (CHIP), particularly those with the highest health care needs.”⁸⁶ From 1998 to 2005, the National Heart, Lung, and Blood Institute, in coordination with the National Institute of Diabetes, created a “Nutrition Academic Award” that recognized 21 medical schools that integrated nutrition education within their curriculum.⁸⁷ Additionally, the Association of American Medical Colleges (AAMC) has created a number of awards programs for UME and GME programs.⁸⁸ An example award is the AAMC Curricular Innovation Award, which give awards of \$2,500 each to medical education programs that provide “innovative pain, substance use, and addiction training.”⁸⁹ Massachusetts can create a similar award program for innovation in nutrition education.

Issue a Nutrition Education Challenge

Alternatively, the Massachusetts Department of Public Health could create a “challenge” to encourage UME and GME programs to place greater emphasis on nutrition education. A Massachusetts state agency, commission, or advisory body could issue a challenge to in-state UME and GME programs to commit to increasing their nutrition-related curricula and programs. Programs that accept the challenge would then report on their progress and receive technical assistance from the Massachusetts government body overseeing the program. With an appropriation from the state legislature or funds from a trust fund, the Massachusetts Department of Public Health could issue a small monetary prize to all the programs that achieve the desired level of training in nutrition.

An example of a challenge program in another context is the EPA Food Recovery Challenge, in which organizations or businesses make a pledge to improve their sustainable food management practices and submit to the EPA the results of their activities.⁹⁰ Participant organizations seek to

“prevent and divert wasted food in their operations.”⁹¹ Upon pledging, the EPA provides participants with access to data management software and technical assistance to help them quantify and improve their practices. The participants keep track of their progress and later submit their annual reports to the EPA. Through this program, a number of organizations and businesses made notable progress in their food waste reduction. The EPA rewards all participating organization with recognition on its website,⁹² and each year it provides special recognition awards to organizations that have made exceptional progress through the challenge.⁹³

C. Technical Assistance

Developing and implementing new educational programs can be time-consuming and expensive, but the burden of this work is greatly diminished if physician and health professional training programs are able to adapt or replicate successful nutrition education programs from other sites. Massachusetts can play a key role in helping schools to identify and connect with such programs. Specifically, the Massachusetts legislature can create an office within the Massachusetts Department of Public Health tasked with providing technical assistance to health professional training programs to improve their nutrition-related programs and curricula.

This office would be dedicated to researching existing nutrition-related curricula, establishing or publicizing core competencies in nutrition for medical schools and various GME specialties, and disseminating information on best practices in nutrition education to UME and GME programs. It could circulate data on the impact of including diet and nutrition in the medical curriculum, so as to encourage UME and GME programs to invest in nutrition education. It could also act as a clearinghouse that shares information about existing initiatives and curricular offerings. For example, it could compile and share a regularly updated guide on nutrition curricula. At the federal level, the NIH has already developed a *Nutrition*

Curriculum Guide for Training Physicians to capture the efforts of medical nutrition educators from 21 medical schools that received grants for nutrition education under the Nutrition Academic Award Program, though this guide is now nearly twenty years old.⁹⁴

As an alternative to creating an office, the state legislature could direct an advisory group to manage physician nutrition education resource centers that would provide technical assistance to UME and GME programs. New York's Palliative Care Education and Training Act provides a model for this change.⁹⁵ The Act created the New York State Palliative Care Education and Training Council and tasked the Council with assisting the New York State Department of Health in designating regional or statewide palliative care "practitioner resource centers."⁹⁶ The legislation provided for the Council to assist the New York State Department of Health in contracting with nonprofit organizations to establish the resource centers.⁹⁷ The Massachusetts legislature could similarly direct an advisory body made up of physicians, UME and GME program leaders, and leaders of the Massachusetts Academy of Nutrition and Dietetics⁹⁸ to work with the Department of Public Health to create resource centers on nutrition education.

D. Licensing Requirements

The state of Massachusetts also has a unique role in shaping the education of physicians in the state via its educational requirements for licensure. The Massachusetts Board of Registration in Medicine, the state regulatory body that licenses Massachusetts physicians,⁹⁹ can **require that physicians in the state take nutrition education courses regularly** as part of their continuing medical education. It can also require training in nutrition and nutrition counseling as a **one-time requirement for initial licensure**.

Create CME Requirements

Massachusetts could be the first state in the nation to require physicians and other health care professionals to complete nutrition CME courses for

re-licensure in the state. It would not be the last; momentum for similar action is already growing in California,¹⁰⁰ New York¹⁰¹ and Washington, D.C.¹⁰² Massachusetts has a timely opportunity to act as a model for these and other states considering similar policy action.

Physicians in Massachusetts must obtain 100 CME credits to renew their licenses every two years.¹⁰³ The Massachusetts Board of Registration in Medicine already requires several topic-specific CME requirements in every renewal period, such as three units in opioids and pain management.¹⁰⁴ Adding a CME requirement that must be completed every renewal period is a powerful way to ensure that health care professionals receive the most up-to-date and accurate nutrition information to guide patients.

Frequent continuing education is especially valuable in the field of nutrition, as nutrition science and dietary guidelines are frequently evolving. This change in Massachusetts' CME requirements could also create a positive domino effect, highlighting the importance of nutrition education for population health and generating CME curricular content that may be adopted throughout the country. Innovative CME programs related to nutrition, such as the Healthy Kitchens, Healthy Lives CME conference of the Harvard T.H. Chan School of Public Health and The Culinary Institute of America¹⁰⁵ or the online self-paced nutrition course offered by the Gaples Institute,¹⁰⁶ could see increases in scope and scale if they experience increased demand from Massachusetts physicians.

Create First-Time Licensure Training Requirements

Other changes could also be introduced to the Massachusetts licensure requirements as a complement to the changes to the requirements for continuing licensure. A small change that could be useful in ensuring that physicians have baseline knowledge of nutrition education would be to require a one-time training in nutrition and nutrition counseling for first-time full licensure in the state. The Board of Registration in Medicine has

made similar training requirements for domestic violence and sexual violence, reporting suspected child abuse and neglect, and end-of-life issues, among other subjects.¹⁰⁷

CONCLUSION

This issue brief represents an array of policy options for the Commonwealth of Massachusetts to increase the type and amount of nutrition education provided to physicians and physicians-in-training in the state. To address the epidemic of chronic, costly, and preventable diet-related

diseases in Massachusetts, physicians must be prepared to understand and counsel on nutrition as a critical health care tool. This guide encourages greater action to promote physician competency and training on nutrition and diet-related diseases, through both voluntary initiatives and mandatory policies administered by decision-makers at the state level. Increased nutrition education for health care professions at every stage of their career can ultimately improve outcomes for individual patients, advance population health, save state funds, and change the health care landscape for the better.

ENDNOTES

- ¹ Emily M. Broad Leib et al., *Doctoring Our Diet: Policy Tools to Include Nutrition in U.S. Medical Training*, HARVARD LAW SCHOOL FOOD LAW AND POLICY CLINIC 15-23 (Oct. 2019), https://www.chlpi.org/wp-content/uplo.ads/2013/12/Doctoring-Our-Diet_-September-2019-V2.pdf.
- ² *State Plan Implementation Task Forces*, FOOD IS MEDICINE MASSACHUSETTS, <https://foodismedicinema.org/the-coalition> (last visited Aug. 6, 2020).
- ³ *People with Certain Medical Conditions*, CTNS. FOR DISEASE CONTROL & PREVENTION, <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-with-medical-conditions.html> (July 30, 2020).
- ⁴ *Health Equity Considerations and Racial and Ethnic Minority Groups*, CTNS. FOR DISEASE CONTROL & PREVENTION, <https://www.cdc.gov/coronavirus/2019-ncov/community/health-equity/race-ethnicity.html> (July 24, 2020).
- ⁵ See, e.g., Caroline E. Childs et al., *Diet and Immune Function*, 11 NUTRIENTS 1933, 1993 (2019).
- ⁶ See, e.g., Cindy W. Leung & June M. Tester, *Association Between Food Insecurity and Diet Quality Varies by Race/Ethnicity: An Analysis of National Health and Nutrition Examination Survey 2011-2014 Results*, 119 J. ACAD. NUTRITION & DIET 1676, 1676 (2019).
- ⁷ Broad Leib, *supra* note 7, at 15-23.
- ⁸ *State Plan Implementation Task Forces*, FOOD IS MEDICINE MASSACHUSETTS, <https://foodismedicinema.org/the-coalition> (last visited Aug. 6, 2020).
- ⁹ See, e.g. *Leading Causes of Death*, CTNS. FOR DISEASE CONTROL & PREVENTION (Mar. 17, 2017), <https://www.cdc.gov/nchs/fastats/leading-causes-of-death.htm>.
- ¹⁰ See, e.g., Marion L. Vetter et al., *What Do Resident Physicians Know About Nutrition? An Evaluation of Attitude, Self-Perceived Proficiency, and Knowledge*, 27 J. Am. C. Nutrition 287, 287 (2008) (finding that only 14% of practicing physicians report feeling qualified to offer nutritional advice to their patients); see also Marigold Castillo et al., *Basic Nutrition Knowledge of Recent Medical Graduates Entering a Pediatric Residency Program*, 28 INT’L J. ADOLESCENT MED. & HEALTH 357, 357 (2016) (study assessing the basic nutritional knowledge of fourth-year medical/osteopathic school graduates entering a pediatric residency program and finding that, on average, the incoming interns answered only 52% of the eighteen questions correctly).
- ¹¹ See Stephen Devries et al., *A Deficiency of Nutrition Education in Medical Training*, 127 AM. J. MED. 804, 804 (2014).
- ¹² See Stephen Devries et al., *A Deficiency of Nutrition Education and Practice in Cardiology*, 130 AM. J. MED. 1298 1298 (2017).
- ¹³ See Kelly Adams et al., *The State of Nutrition Education at US Medical Schools*, 2015 J. BIOMEDICAL EDUC. 2 (2015).
- ¹⁴ See *Standards, Publications, & Notification Forms*, LIAISON COMMITTEE ON MED. EDUC., <http://lcme.org/publications/> (last visited Apr. 2, 2020) (housing LCME’s standards from current and past years).
- ¹⁵ See Elsa Spencer et al., *Predictors of Nutrition Counseling Behaviors and Attitudes in US Medical Students*, 84 AM. J. CLINICAL NUTRITION 655, 659 (2006).
- ¹⁶ Ironically, those terms are only present in sections discussing the residents’ own health and wellbeing. For example, the Specialty Requirements for GME in Pediatrics require GME programs and their sponsoring institutions to address well-being for residents and fellows by creating “policies and programs that encourage optimal resident and faculty member well-being,” including a “healthy diet.” ACCREDITATION COUNCIL FOR GRADUATE MED. EDUC., ACGME PROGRAM REQUIREMENTS FOR GRADUATE MEDICAL EDUCATION IN PEDIATRICS 52, (2019), https://www.acgme.org/Portals/0/PFAssets/ProgramRequirements/320_Pediatrics_2019.pdf?ver=2019-06-18-155134-967.
- ¹⁷ This report will not focus further on Step and Board examinations, although it should be noted that incorporating more nutrition-focused questions in Step and Board examinations could be a way to address nutrition education for physicians. Inserting nutrition-related test questions into these exams would likely prompt both UME and GME programs to change their curricula to include more coverage of nutrition education in order to ensure their students will be successful on these exams. However, Massachusetts would not be able to independently alter the requirements or guidelines to include nutrition competency, as the content of these exams is controlled by nongovernmental accrediting or testing bodies: the National Board of Medical Examiners (NBME), the Federation of State Medical Boards (FSMB) co-sponsor the Step examinations, and the member boards of the American Board of Medical Specialties (ABMS). See *Bulletin*, U.S. MED. LICENSING EXAMINATION <https://www.usmle.org/bulletin/welcome/> (last visited Apr. 2, 2020); *Board Certification Standards*, AM. BD. OF MED. SPECIALTIES, <https://www.abms.org/board-certification/board-certification-standards/> (last visited Apr. 2, 2020).
- ¹⁸ Robert F. Kushner et al., *Obesity Coverage on Medical Licensing Examinations in the United States: What is Being Tested*, 29 TEACHING & LEARNING MED. 123, 123–24 (2017).
- ¹⁹ See *Bulletin*, *supra* note 17.
- ²⁰ See *Board*, *supra* note 17.

- ²¹ See *Board Certification Standards*, AM. Bd. OF MED. SPECIALTIES (2020), <https://www.abms.org/board-certification/board-certification-standards/>.
- ²² See Bill A7695, N.Y. State Assembly (N.Y. 2019).
- ²³ See Continuing Nutrition Education Amendment Act of 2019, Council of D.C. B23-0360 (D.C. 2019).
- ²⁴ CAL. BUS. & PROF. CODE §2191(a), (d) (West 2018).
- ²⁵ See Bd. of Med., *Continuing Education Requirements*, DC HEALTH, <https://dchealth.dc.gov/node/120612> (last visited Apr. 2, 2020).
- ²⁶ See Dep't of Pub. Health, *Public Note: Identifying Public Health Issues for Continuing Education*, D.C. REG. (Nov. 1, 2019), https://dchealth.dc.gov/sites/default/files/dc/sites/doh/service_content/attachments/10%25%20CE%20-%20Public%20Notice%20-%2066%20DCR%2014518-14519.pdf.
- ²⁷ See *The Program*, MASS. FOOD TRUST PROGRAM, <https://massfoodtrustprogram.org/> (last visited Apr. 2, 2020); see also *Baker-Polito Administration Awards Over \$1 Million in Funding to Increase Access to Healthy, Local Food Options*, MASS. EXECUTIVE OFF. ENERGY & ENVTL. AFF., <https://www.mass.gov/news/baker-polito-administration-awards-over-1-million-in-funding-to-increase-access-to-healthy> (Jun. 21, 2018).
- ²⁸ *MassHealth Accountable Care Organization Flexible Services*, MASS.GOV (Oct. 2019), <https://www.mass.gov/files/documents/2019/10/24/flexible-services-summary.pdf>.
- ²⁹ See *Healthy Incentives Program Monthly Update*, MASS. DEP'T TRANSITIONAL ASSISTANCE (Feb. 2020), <https://www.mass.gov/doc/healthy-incentives-program-fact-sheet-february-2020-pdf-0/download>.
- ³⁰ See *What's the Healthy Incentives Program?*, FOOD BANK W. MASS, <https://www.foodbankwma.org/hip/> (last visited Apr. 2, 2020); see also *Healthy Incentives Program (HIP)*, MASS. DEP'T TRANSITIONAL ASSISTANCE, <https://www.mass.gov/healthy-incentives-program-hip> (last visited Apr. 2, 2020). The program was suspended between February and May 2020 due to lack of funds—in fact, the program has run out of funds at the end of every year since its inception in 2017 due to its popularity and limited budget. See Anita Fritz, *State Suspends HIP from Feb. 23 to May 15*, GREENFIELD RECORDER, <https://www.recorder.com/Healthy-Incentives-temporary-suspension-32381919> (Feb. 2, 2020).
- ³¹ See, e.g., Alexa Burrows, *Top Reasons Why Boston is the Leader in Medical Care*, BOSTON MAG. (2019) <https://www.bostonmagazine.com/sponsor-content/top-reasons-why-boston-is-the-leader-in-medical-care/>.
- ³² See Barbara Anthony, *Beyond Obamacare: Lessons from Massachusetts*, HARV. KENNEDY SCH MOSSAVAR-RHAMANI CTR. FOR BUS. & GOV. 2 (2017), https://www.hks.harvard.edu/sites/default/files/centers/mrcbg/files/82_BeyondObamacare.pdf.
- ³³ See *Graduate Medical Education Totals by State*, ACCREDITATION COUNCIL FOR GRADUATE MED. EDUC. (Apr. 1, 2020), <https://apps.acgme.org/ads/Public/Reports/ReportRun>.
- ³⁴ See COMMONWEALTH OF MASS., REPORT OF THE SPECIAL COMMISSION ON GRADUATE MEDICAL EDUCATION 5 (2013) [hereinafter Special Commission], <https://www.mass.gov/doc/final-report-6/download>; see also ASS'N OF AM. MED. COLLS., MEDICAID GRADUATE MEDICAL EDUCATION PAYMENTS: RESULTS FROM THE 2018 50-STATE SURVEY 33 (2019) [hereinafter 50-State Survey], https://store.aamc.org/downloadable/download/sample/sample_id/284/.
- ³⁵ See 50-State Survey, *supra* note 34; see also *2020 Best Medical Schools: Research*, U.S. NEWS & WORLD REP. (2019), <https://www.usnews.com/best-graduate-schools/top-medical-schools/research-rankings>.
- ³⁶ *Massachusetts Diabetes Data*, MASS. BUREAU OF CMTY. HEALTH & PREVENTION, <https://www.mass.gov/service-details/massachusetts-diabetes-data> (last visited May 1, 2020).
- ³⁷ *Stats of the State of Massachusetts*, CTRS. FOR DISEASE CONTROL & PREVENTION (Apr. 11, 2018), <https://www.cdc.gov/nchs/pressroom/states/massachusetts/massachusetts.htm>.
- ³⁸ CTRS. FOR DISEASE CONTROL & PREVENTION, MASSACHUSETTS STATE NUTRITION, PHYSICAL ACTIVITY, AND OBESITY PROFILE 2 (2016), <https://www.cdc.gov/nccdphp/dnpao/state-local-programs/profiles/pdfs/massachusetts-state-profile.pdf>.
- ³⁹ A shift at the population level toward improving diet, as measured by a 20% increase in the healthy eating index or Mediterranean diet score, could save \$16.7 billion to \$31.5 billion. Savings would come from reduced costs to address cardiovascular disease, cancer, diabetes, Alzheimer's disease, and hip fractures. See Carolyn G. Scrafford et al., *Health Economic Evaluation Modeling Shows Potential Health Care Cost Savings with Increased Conformance with Healthy Dietary Patterns among Adults in the United States*, J. ACAD. NUTRITION & DIETETICS (Dec. 24, 2018), [https://jandonline.org/article/S2212-2672\(18\)30461-1/fulltext](https://jandonline.org/article/S2212-2672(18)30461-1/fulltext); see also Broad Leib, *supra* note 7, at 15.
- ⁴⁰ See Priyanka Dayal McCluskey, *Baker Introduced New Health Care Bill, Proposing Sweeping Changes*, BOSTON GLOBE (Oct. 18, 2019), <https://www.bostonglobe.com/metro/2019/10/18/baker-health-care-bill-reins-medical-billing-penalizes-drug-companies-for-price-increases/YaMIJXqIMisRK8jVRpMAUP/story.html>.

⁴¹ The legislation would require MassHealth and other insurers to increase spending on behavioral health and primary care by 30% over three years. It also increases state oversight of drug prices, allows the Health Policy Commission to impose financial penalties on entities that exceed certain health care cost benchmarks, and prohibits surprise billing for emergency services rendered by out of network providers at in-network facilities. See *An Act to Improve Health Care by Investing in Value*, H.4134, 191st Gen. Ct. (Mass. 2019), <https://malegislature.gov/Bills/191/H4134>; see also *Baker-Polito Administration Announces Health Care Legislation Aimed at Addressing Key Challenges*, MASS. GOVERNOR'S OFF. (Oct. 18, 2019), <https://www.mass.gov/news/baker-polito-administration-announces-health-care-legislation-aimed-at-addressing-key>.

⁴² 52.8% of students who completed residency training in Massachusetts from 2009 through 2018 are currently practicing in the state. See *Report on Residents 2019 Table C6: Physician Retention in State of Residency Training, by State*, ASS'N OF AM. MED. COLLS. (2019) [hereinafter Report on Residents], <https://www.aamc.org/data-reports/students-residents/interactive-data/report-residents/2019/table-c6-physician-retention-state-residency-training-state>.

⁴³ See Broad Leib, *supra* note 7, at 3.

⁴⁴ *Id.*

⁴⁵ For example, the accrediting bodies for UME and GME can change their requirements for program accreditation. Additionally, the National Board of Medical Examiners, the Federation of State Medical Boards, and the American Board of Medical specialties can amend medical step and board exams to include nutrition-related test questions, so as to encourage students to study nutrition in preparation for the exams. Lastly, the federal government can leverage its significant Medicare funding of GME programs in order to incentivize or effectively require GME programs to provide nutrition education. See *id.*

⁴⁶ See H.4134, *supra* note 41.

⁴⁷ Many of the leading causes of death nationwide, such as heart disease, cancer, stroke, and diabetes, have a high correlation to poor diet and nutrition. As the prevalence of diet-related diseases increases, so do health care costs, and many of these costs are paid by the government. Medicare spending has increased rapidly, rising from \$337 billion in 2005 to an estimated \$704 billion in 2018, and it is expected to reach \$1 trillion by 2020. See Broad Leib, *supra* note 7. In 2017, state and local governments spent \$294 billion, or 10% of direct general spending, on health and hospitals. See *State and Local Finance Initiative: Health and Hospital Expenditures*, URBAN INSTITUTE, <https://www.urban.org/policy-centers/cross-center-initiatives/state-and-local-finance-initiative/state-and-local-backgrounders/health-and-hospital-expenditures> (last visited Apr. 2, 2020). Much of this spending is from Medicaid, which accounted for 19.6% of spending from state general funds in 2015. See *Medicaid's Share of State Budgets*, MEDICAID & CHIP PAYMENT & ACCESS COMMISSION, <https://www.macpac.gov/subtopic/medicaids-share-of-state-budgets/> (last visited Apr. 2, 2020). Additionally, state and local governments pay for increased health care costs via expenditures on state and local employee health, among other programs. See *State Health Care Spending Project Reports*, PEW CHARITABLE TRUSTS (Jun. 18, 2015), <https://www.pewtrusts.org/en/research-and-analysis/articles/2014/11/state-health-care-spending-projects>.

⁴⁸ See *What is the Actual State Cost of MassHealth in 2019?*, MASS. BUDGET & POL'Y CTR. (Jun. 2019), https://massbudget.org/reports/pdf/MassHealth_2019.pdf.

⁴⁹ See Priyanka Dayal McCluskey, *Beyond Budget Figures: Report Provides a Snapshot of 1.8m on MassHealth*, BOSTON GLOBE (May 26, 2019), <https://www.bostonglobe.com/metro/2019/05/26/beyond-budget-figures-new-report-provides-snapshot-million-people-masshealth/3vmVvAjwwvyozrTznKXIfL/story.html>.

⁵⁰ Compare fiscal year 2019 total spending on MassHealth of approximately \$16.7 billion, see *What is the Actual State Cost of MassHealth in 2019?*, *supra* note 48, to the fiscal year 2007 total spending of \$7.5 billion, see MASS. MEDICAID POLICY INST., MASSHEALTH: THE BASICS 17 (2017), https://www.bluecrossmafoundation.org/sites/default/files/download/publication/MassHealthBasics_Chartpack_v11_10-22-18update_Final%202017.pdf.

⁵¹ See *Massachusetts Budget Process*, COMMONWEALTH OF MASS., <https://www.mass.gov/service-details/massachusetts-budget-process> (last visited Apr. 2, 2020).

⁵² See *id.*

⁵³ Am. Coll. of Physicians, *Financing U.S. Graduate Medical Education: A Policy Position Paper*, ANNALS OF INTERNAL MEDICINE (Jul. 19, 2016), <https://annals.org/aim/fullarticle/2520466/financing-u-s-graduate-medical-education-policy-position-paper-alliance>; see also GOV'T ACCOUNTABILITY OFFICE, PHYSICIAN WORKFORCE: GAO-18-240 1 (2018). The federal government could leverage these funds to mandate that GME programs offer nutrition education, but this federal policy change is out of the scope of this issue brief.

⁵⁴ See 50-State Survey, *supra* note 33, at 3.

⁵⁵ See Gov't Accountability Office, *supra* note 53, at 1.

⁵⁶ See 50-State Survey, *supra* note 34, at 3.

⁵⁷ See 50-State Survey, *supra* note 34, at 1. States may provide funding through fee-for-service programs, risk-based managed care programs, or both. In 2018, 41 states funded GME programs through their Medicaid fee-for-service program and 39 states apportioned funds through their Medicaid risk-based managed care programs. *Id.*

⁵⁸ See PROGRAM ON HEALTH WORKFORCE RESEARCH AND POLICY AT THE CECIL G. SHEPS CTR. FOR HEALTH SERV. RESEARCH, GME IN THE U.S.: A REVIEW OF STATE INITIATIVES 11 (2013), https://www.shepscenter.unc.edu/wp-content/uploads/2013/09/GMEstateReview_Sept2013.pdf.

⁵⁹ An Act Improving the Quality of Health Care and Reducing Costs Through Increased Transparency, Efficiency and Innovation, 2012 MASS. LEGIS. SERV. CH. 224 §277 (West).

⁶⁰ See Special Commission, *supra* note 34, at 38. Similarly, in 2012 the Institute of Medicine (now the National Academy of Medicine) convened a committee on the governance and financing of GME and concluded that government GME funding should be based on performance metrics. These metrics have not yet been developed. See Kelly J. Caverzagi et al., *Proposed Performance-Based Metrics for the Future Funding of Graduate Medical Education: Starting the Conversation*, 93 ACAD. MED. 1002, 1002 (2018). Additionally, in 2018 the U.S. Government Accountability Office released a report recommending that the Secretary of Health and Human Services coordinate with the relevant federal agencies to evaluate the programs that fund GME training on metrics such as cost-effectiveness. See Gov't Accountability Office, *supra* note 53, at 50.

⁶¹ Special Commission, *supra* note 34, at 5.

⁶² *Id.*

⁶³ It is estimated that at the national level up to 11.8% of Medicaid enrollees have heart disease, 27.4% have hypertension, and 12.7% have diabetes. See JM Chapel et al., *Prevalence and Medical Costs of Chronic Diseases Among Adult Medicaid Beneficiaries*, 53 AM. J. PREV. MED. 143, 143 (2017).

⁶⁴ See An Act to Promote Graduate Medical Education, H.1183, 191st Gen. Ct., (Mass. 2019), <https://malegislature.gov/Bills/191/H1183>; see also An Act to Promote Graduate Medical Education, S.698, 191st Gen. Ct. (Mass. 2019), <https://malegislature.gov/Bills/191/S698>.

⁶⁵ “...\$750,000 shall be equally distributed to the teaching community health centers with family medicine residency programs in the cities of Worcester and Lawrence and in the South Boston section of the city of Boston...” *FY 2020 Final Budget*, MASS. LEGIS. (2019), <https://malegislature.gov/Budget/FY2020/FinalBudget>.

⁶⁶ See *MERC History*, MINN. DEP'T OF HEALTH, <https://www.health.state.mn.us/facilities/ruralhealth/merc/history.html#fund> (last visited Mar. 15, 2020) (“Currently, funds for the MERC distribution come from cigarette tax revenues, a carveout of medical education funds from the Prepaid Medical Assistance Program, and federal Medicaid matching funds obtained by the Department of Human Services”).

⁶⁷ See Special Commission, *supra* note 34, at 35-36.

⁶⁸ See TEX. HIGHER EDUC. COORDINATING BD., SUMMARY OF HIGHER EDUCATION LEGISLATION 4 (2019), <http://reportcenter.theccb.state.tx.us/training-materials/presentations/board-legislation-2019-summary/>.

⁶⁹ See, e.g., Special Commission, *supra* note 34, at 34; see also EMPIRE CENTER, HOOKED ON HCRA: NEW YORK'S 20-YEAR HEALTH TAX HABIT 21 (2017), <https://www.empirecenter.org/wpcontent/uploads/2017/01/HookedOnHCRA-1.pdf>.

⁷⁰ See TEX. HIGHER EDUC. COORDINATING BD., BUDGET STRATEGY DESCRIPTIONS FOR THE 2020-2021 BIENNIUM 14 (2020), <http://reportcenter.theccb.state.tx.us/agency-publication/miscellaneous/theccb-budget-strategy-descriptions-estimated-budget-for-the-2020-21-biennium/>.

⁷¹ *AMA Reimagining Residency Initiative*, Am. Med. Ass'n., <https://www.ama-assn.org/education/improve-gme/ama-reimagining-residency-initiative> (last visited Mar. 15, 2020). Over 300 entities submitted proposals for this grant program. *Id.*

⁷² *The Role of Trust Funds in MassHealth and Health Reform Spending: A Primer*, MASS. MEDICAID POL'Y INST. (Dec. 2013), https://massbudget.org/reports/pdf/mmpi_trust_fund.pdf. The report notes that, in fiscal year 2013, approximately \$2 billion was spent through health-related trust and other special funds not subject to annual budget appropriations. *Id.*

⁷³ *Id.*

⁷⁴ *Id.*

⁷⁵ The Public Health Trust Fund was established to allow the Massachusetts Department of Public Health to participate in competitive grant opportunities with nonprofit partners, with a current focus on supporting opportunities around data sharing. See MASS. EXEC. OFF. OF HEALTH AND HUM. SERV., PUBLIC HEALTH GRANT TRUST FUND REPORT 2019 1 (2019). For the authorizing statute of the Public Health Trust Fund, see MASS. ANN. LAWS ch. 111, §2J.

⁷⁶ The Prevention and Wellness Trust Fund provides grants “for the implementation, evaluation and dissemination of evidence-based community preventive health activities” to “municipalities, community-based organizations, health care providers, regional-planning agencies, and health plans.” MASS. ANN. LAWS ch. 111, §2G. The fund was not reauthorized in 2018, but leaders around the state have advocated for the fund's reauthorization. See *Prevention and Wellness Trust Fund*, MASS. PUBLIC HEALTH ASSOC., <https://mapublichealth.org/priorities/connecting-community-health-clinical-care/pwtf/> (last visited Apr. 21, 2020).

⁷⁷ See *Graduate Medical Education*, U. MASS. MED. SCH. [hereinafter UMass], <https://www.umassmed.edu/gme/> (last visited Apr. 2, 2020).

⁷⁸ *Graduate Medical Education Totals by State*, ACCREDITATION COUNCIL FOR GRADUATE MED. EDUC. (Apr. 1, 2020), <https://apps.acgme.org/ads/Public/Reports/ReportRun>.

⁷⁹ See UMass, *supra* note 77.

⁸⁰ 52.8% of students who completed residency training in Massachusetts from 2009 through 2018 are currently practicing in the state. See Report on Residents, *supra* note 42.

⁸¹ 115 of the 162 members of the UMass Medical School Class of 2023 are Massachusetts residents. See *School of Medicine Class of 2023*, U. MASS. MED. SCH., <https://www.umassmed.edu/som/admissions/student-life/class-profile/> (last visited Apr. 1, 2020). Similarly, the class of 2022 consists of 106 Massachusetts residents and 56 out-of-state students. See Sandra Gray, *UMass Medical School Welcomes School of Medicine Class of 2022*, U. MASS. MED. SCH. (Aug. 7, 2018), <https://www.umassmed.edu/news/news-archives/2018/08/umass-medical-school-welcomes-school-of-medicine-class-of-2022/>.

⁸² See *About UMass Medical School*, U. MASS. MED. SCH., <https://www.umassmed.edu/about/facts/> (last visited Apr. 1, 2020).

⁸³ See *Glossary*, MASS. LEGIS., <https://malegislature.gov/StateHouse/Glossary#R> (last visited Mar. 20, 2020).

⁸⁴ Resolutions Supporting Efforts to Ensure That Students from Massachusetts Have Access to Debt-Free Higher Education at Public Colleges and Universities, H.1230, 191st Gen. Ct. (Mass. 2019), <https://malegislature.gov/Bills/191/H1230>.

⁸⁵ See *Manuel Carballo Governor's Award for Excellence in Public Service*, COMMONWEALTH OF MASS. (2020), <https://www.mass.gov/service-details/manuel-carballo-governors-award-for-excellence-in-public-service-nomination>.

⁸⁶ *Health Care Innovation Awards*, CTR. FOR MEDICARE & MEDICAID SERV., <https://innovation.cms.gov/initiatives/Health-Care-Innovation-Awards/> (last visited Mar. 15, 2020); see also, *Health Care Innovation Awards to Provide Better Health Care and Lower Costs*, U.S. DEP'T HEALTH & HUM. SERV. (2014), <http://wayback.archive-it.org/3926/20170127185204/https://www.hhs.gov/about/news/2014/07/09/health-care-innovation-awards-to-provide-better-health-care-and-lower-costs.html>.

⁸⁷ See Linda Van Horn, *The Nutrition Academic Award: Brief History, Overview, and Legacy*, 83 AM. J. OF CLINICAL NUTRITION 936, 936 (2006), <https://academic.oup.com/ajcn/article/83/4/936S/4753837>

⁸⁸ See *AAMC Awards*, ASS'N AM. MED. COLL., <https://www.aamc.org/what-we-do/aamc-awards> (last visited Mar. 15, 2020).

⁸⁹ See *AAMC Curricular Innovation Awards*, ASS'N AM. MED. COLL., <https://www.aamc.org/what-we-do/aamc-awards/curricular-innovation-awards> (last visited Mar. 15, 2020).

⁹⁰ See *Sustainable Management of Food: Food Recovery Challenge*, U.S. ENVTL. PROT. AGENCY (2019), <https://www.epa.gov/sustainable-management-food/food-recovery-challenge-frc>.

⁹¹ See *id.*

⁹² See *id.*

⁹³ See *Food Recovery Challenge Results and Award Winners*, U.S. ENVTL. PROT. AGENCY (2018), <https://www.epa.gov/sustainable-management-food/food-recovery-challenge-results-and-award-winners#2018national>.

⁹⁴ See Charles B. Eaton, et al., *Nutrition Curriculum Guide for Training Physicians: Practice Behavioral Skills and Attitudes Across the Curriculum*, NUTRITION ACADEMIC AWARD PROGRAM (2002), <https://www.nhlbi.nih.gov/sites/default/files/media/docs/NAA%20Nutrition%20Curriculum%20Guide.pdf>.

⁹⁵ N.Y. Pub. Health Law § 2807-n (6) (Consol., Lexis Advance through 2020 released Chapters 1-25).

⁹⁶ *Id.*

⁹⁷ *Id.*

⁹⁸ In a 2017 position paper, the national Academy of Nutrition and Dietetics stressed the importance of including nutrition education in all stages of physicians' education. The position paper also asserted that "RDNs are in an ideal position" to provide leadership on medical school curriculum design. Lisa A. Hark & Darwin Deen, *Position of the Academy of Nutrition and Dietetics: Interprofessional Education in Nutrition as an Essential Component of Medical Education*, 117 J. Acad. Nutrition & Dietetics 1109 (2017). A regional affiliate of the Academy of Nutrition and Dietetics, Massachusetts Academy of Nutrition and Dietetics, would likely be well suited to provide leadership on nutrition curriculum design. See, e.g., *State Public Policy, Legislation & Advocacy*, MASS. ACAD. OF NUTRITION & DIETETICS, <https://www.eatrightma.org/page/state-public-policy-legislation-advocacy> (last visited Jun. 24, 2020).

⁹⁹ See *About the Board*, COMMONWEALTH OF MASS., <https://www.mass.gov/about-the-board> (last visited Mar. 15, 2020).

¹⁰⁰ CAL. BUS. & PROF. CODE § 2191(a), (d) (West 2018).

¹⁰¹ See Bill A7695, *supra* note 22.

¹⁰² The District of Columbia has a pending bill which would require nutrition education as part of CME for physicians. See B23-0360, *supra* note 23. Additionally, the District of Columbia requires physicians and other health professionals to complete at least 10% of their required total continuing education hours in topics identified as "public health priorities," one of which is nutrition and obesity prevention. See Dep't of Pub. Health, *supra* note 26.

¹⁰³ 243 MASS. CODE. REGS. §2.06(1), (6), https://www.sec.state.ma.us/reg_pub/pdf/200/243002.pdf.

¹⁰⁴ See *Amended Guidelines for Fulfilling the Continuing Medical Education (CME) and the Education Trainings Requirements During the Pilot Program*, MASS. MED. SOC'Y (Dec. 6, 2018) [hereafter Amended Guidelines], <http://www.massmed.org/Continuing-Education-and-Events/CME-Pilot-Program-Policy-2018/>.

¹⁰⁵ The Healthy Kitchens, Healthy Lives conference gathers physicians, dietitians, and other health professionals to learn up-to-date information about nutrition science as well as to understand strategies for healthful eating and cooking. The conference

provides lectures, culinary demonstrations, interactive workshops, and hands-on kitchen sessions. Conference attendees can obtain continuing education credits. See *Overview*, HEALTHY KITCHENS, HEALTHY LIVES (2020), <https://www.healthykitchens.org/about>.

¹⁰⁶ Resources for Health Professionals, Gaples Institute for Integrative Cardiology, <https://www.gaplesinstitute.org/e-learning-physicians/> (last visited Aug. 6, 2020).

¹⁰⁷ 243 MASS. CODE. REGS, 2.02(2), https://www.sec.state.ma.us/reg_pub/pdf/200/243002.pdf; see also Amended Guidelines, *supra* note 104.