

Strategic Roadmap for Including Lifestyle Medicine into UME:

Literature Review & Gap Analysis

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Presented by:





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Gap Analysis of Medical Education

Criteria	Present State	Ideal State	Considerations for Change
Political Environment	The political environment has resulted in limited legislative progress in support of Preventive Medicine and lifestyle medicine components (e.g. ACA, Res. 959, etc.)	The political environment supports legislation and policy that highlights Preventive Medicine and lifestyle medicine components	<ul style="list-style-type: none"> • Awareness of legislators and policy makers • Competing political priorities • Impact of lobbyist
Health Care System	Lacks structure and incentives to prioritize use of Preventive Medicine and lifestyle medicine components in clinical settings	Prioritizes and incentivizes the training of physicians in Preventive Medicine and lifestyle medicine-related topics	<ul style="list-style-type: none"> • Funding • Policy • Reimbursement models • Physician training • Accreditation standards
Rationale for Including LM in UME	There is substantive evidence to support the benefits of lifestyle on health, and yet UME has failed to comprehensively include LM curriculum ^{1,2}	Decision makers utilize evidence-based knowledge to drive change in UME curriculum	<ul style="list-style-type: none"> • Awareness of rationale • Valuing the evidence • Support for change agents
Extent of Inclusion of LM components in UME	Despite gains and early adopters, the inclusion of lifestyle medicine components in UME is inconsistent and incomplete	Components of lifestyle medicine are an integral part of medical school curricula.	<ul style="list-style-type: none"> • Curriculum reform • Support from Deans and administration • Faculty and clinician buy-in • Ability of faculty to teach LM content • Student support and interest • Medical School accreditation • Physician licensing and credentialing exams

¹ Intensive lifestyle changes for reversal of coronary heart disease. Ornish, et al. JAMA.

² Physician competencies for prescribing lifestyle medicine. Lianov, & Johnson. JAMA

Gap Analysis of Medical Education

Criteria	Present State	Ideal State	Considerations for Change
LM Curriculum	Models for lifestyle medicine-related curriculum exist, but are sporadically included in UME	Evidence-based lifestyle medicine-related curriculum is consistently incorporated in all accredited medical school programs	<ul style="list-style-type: none"> • Accreditation and examination • Board certification and licensing • Policy • Funding • Buy-in from the field
Medical School Accreditation	Accreditation does not directly require the inclusion of lifestyle medicine (or its components) in medical education curriculum, although nutrition is consistently included in existing required coursework (LCME – Content Documentation)	Medical programs must incorporate a required minimum number of contact hours and coursework in key components of lifestyle medicine in order to maintain accreditation	<ul style="list-style-type: none"> • Reform of accreditation standards • Buy-in from accrediting bodies • Buy-in from medical schools • Buy-in from curriculum managers/directors • Incentives from workforce and health care systems
Licensing & Credentialing	There are gaps in the assessment of the components of lifestyle medicine for licensing and credentialing of medical professionals through the National Board of Medical Examiners (NBME) ¹	Competencies in the components of lifestyle medicine are directly assessed as part of licensing and credentialing exams	<ul style="list-style-type: none"> • Modifications to licensing and board exams • Buy-in from NBME and other accrediting bodies
Inclusion of LM in EPAs	Currently, EPAs do not directly address or require competency in lifestyle medicine, although there have been several proposals introducing LM-related competencies	Competency in components of lifestyle medicine are directly addressed in EPAs for matriculation	<ul style="list-style-type: none"> • Buy-in from AAMC • Buy-in from accrediting, licensing, and credentialing bodies • Buy-in from medical schools

Gap Analysis

Criteria	Present State	Ideal State	Considerations for Change
Workforce	All levels within the field recognize a lack of adequate training	Physicians can confidently and effectively counsel patients on components of LM and make appropriate referrals when necessary Physicians understand the community conditions hindering success of behavior changes such as social determinants of health (SDOH).	<ul style="list-style-type: none"> • Awareness & knowledge of the impact of lifestyle factors on NCDs and SDHs • Appropriate training to address lifestyle factors • Incentives to address LM components in clinical settings • Building interdisciplinary relationships and the skill/awareness to refer • Understand the implications of SDOH
Patient Support	Patients are not receiving referral guidance from physicians to implement health promoting lifestyle behaviors	Patients are educated and empowered by their physicians to successfully adopt and maintain health-promoting lifestyle behaviors	<ul style="list-style-type: none"> • Physician competency in lifestyle/behavioral counseling/referral • Patient education • Incentives/Financial model for clinical care



Setting the Context: Demographic Trends

By 2032, demand for physicians will exceed supply by a range of 46,900 to 121,900 full-time equivalent physicians, almost 50% to 128% of the FTE physicians working in 2016.¹

- Projected shortages include 21,100 to 55,200 primary care physicians and 24,800 to 65,800 non primary care physicians by 2023.

Drivers of the projected shortages include:

- **Population growth and aging:** By 2032, the US population of adults age 65+ is projected to grow by 48% and seniors have much higher per capita consumption of health care services, especially those of specialty physicians.
- **Distribution of workforce:** There is a relative shortage of physicians in rural areas of America, while some urban areas experience a surplus. Additionally, specialty medicine physicians are significantly less likely to practice in a rural setting.

Setting the Context: US Health Outcomes

The United States spends more on health care than any other nation in the world (\$9451 per capita) according to the Organization for Economic Co-operation and Development (OECD), yet the U.S. has lower returns on its investment in terms of value and positive health outcomes.¹

- CDC estimates that approximately 90% of \$3.3 trillion US health care dollars are spent annually on the treatment of preventable, lifestyle-related, noncommunicable chronic diseases (NCDs).²
- Projected U.S. medical expenditures for preventable illness and death in 2020:
 - Smoking-related illness: \$193 billion
 - Overweight and obesity: \$190.2 billion
 - Hypertension: \$20.5 billion
- In 1970, the life expectancy in the US was one year above the OECD average. However, the U.S. life expectancy is now almost two years below the OECD average of 79 years. (Health at a Glance 2017, CDC)³

¹ *Including Lifestyle Medicine in Medical Education: Rationale for American College of Preventive Medicine*. Trilk, Jennifer et al., American Journal of Preventive Medicine.

² Health and Economic Costs of Chronic Diseases. National Center for Chronic Disease Prevention and Health Promotion

³ *Health at a Glance - Life Expectancy. OECD Indicators*



Setting the Context: US Health Outcomes

The World Health Organization's 2013 Action Plan for the Global Strategy for the Prevention and Control of NCDs addressed the four shared risk factors (tobacco use, physical inactivity, unhealthy diets, and the harmful use of alcohol) and their collective impact on disease prevalence.^{1,2}

- **Cardiovascular diseases:** Prevalence of heart disease, heart failure, stroke and high blood pressure among U.S. adults was 9%, or 24 million in 2016.
- **Diabetes:** Prevalence of Type 2 diabetes among U.S. adults was 8.6%, or 21 million in 2016.
- **Cancers:** Prevalence of cancer among U.S. adults was 1.66 million new cases, but there were an estimated 15.5 million cancer survivors in 2016.
- **Chronic respiratory diseases:** Prevalence of Chronic Obstructive Pulmonary Disease (COPD) among U.S. adults was 6.2%, or 16 million in 2016
- **Obesity:** It is estimated that 45% of the U.S. population will be obese by 2035.
- **Comorbidity:** In the U.S., obesity-associated comorbidities account for 45% of all cases of hypertension, 18% of hypercholesterolemia, 35% of heart disease, and 85% of type 2 diabetes.

¹ Including *Lifestyle Medicine in Medical Education: Rationale for American College of Preventive Medicine*. Trilk, Jennifer, et al., American Journal of Preventive Medicine.

² *Teaching Nutrition in the Context for Lifestyle Medicine*. Kushner, R.F., Van Horn Med.Sci.Educ.

Setting the Context: Future of Medicine

Scenario planning for Medicine in 2023 conducted by the Accreditation Council for Graduate Medical Education (2013-2014) define a series of possible future “worlds” that may shape the Future of Medicine based on key criteria and related trends¹:



**US Economic
Vitality**

Strong or weak



Social Contract

Broad-Inclusive or
Limited-Exclusive



Societal Change

Evolutionary or
Revolutionary



**Health Care as
Percentage of GDP**

Decreasing or
Increasing

¹What will the Medical Workforce of the Future Look Like? Nasca, Thomas, Accreditation Council for Graduate Medical Education



Setting the Context: Future of Medicine

The following trends were consistent across all the Accreditation Council for Graduate Medical Education's (ACGME) scenario planning results for Medicine in 2023¹:

- **Increased complexity** in society and patient care.
- **Increased information transparency** coupled with challenges to the accuracy and validity of competing data sources and analyses.
- **Little tolerance** for approaches to accreditation, credentialing, and licensing with burdensome process inefficiencies and potentially conflicting standards.
- **Accelerated commoditization** of healthcare services, including:
 - Price-driven services at entry level
 - Responsibilities in inter-professional team-based care
 - High-end procedures may be rigorously standardized or automated

¹What will the Medical Workforce of the Future Look Like? Nasca, Thomas, Accreditation Council for Graduate Medical Education

Setting the Context: Future of Medicine

Regardless of the future state, scenario planning for Medicine in 2023 concluded that medical education must¹:

- Be responsive to societal needs
- Be forward-facing and anticipatory of the needs of those we serve
- Be outcomes-oriented and evidence-based, whenever possible
- Promote effective interprofessional team-based care
- Result in graduates who provide for, and promote the safety and quality of, patient care throughout their careers,
- Result in graduates who manifest professionalism and effacement of self-interest to meet the needs of their patients
- Be accomplished under the auspices of an ACGME that supports current and future physicians to fulfill their social, moral, and professional contracts, and manifests the values it currently promotes. (*ACGME values: Honesty and Integrity; Excellence and Innovation; Accountability and Transparency; Fairness and Equity; Stewardship and Service; Engagement of Stakeholders; Leadership and Collaboration*²)

¹ *What will the Medical Workforce of the Future Look Like?* Nasca, Thomas, Accreditation Council for Graduate Medical Education

² ACGME website: <https://www.acgme.org/About-Us/Overview/Mission-Vision-and-Values>



Setting the Context: Future of Medicine

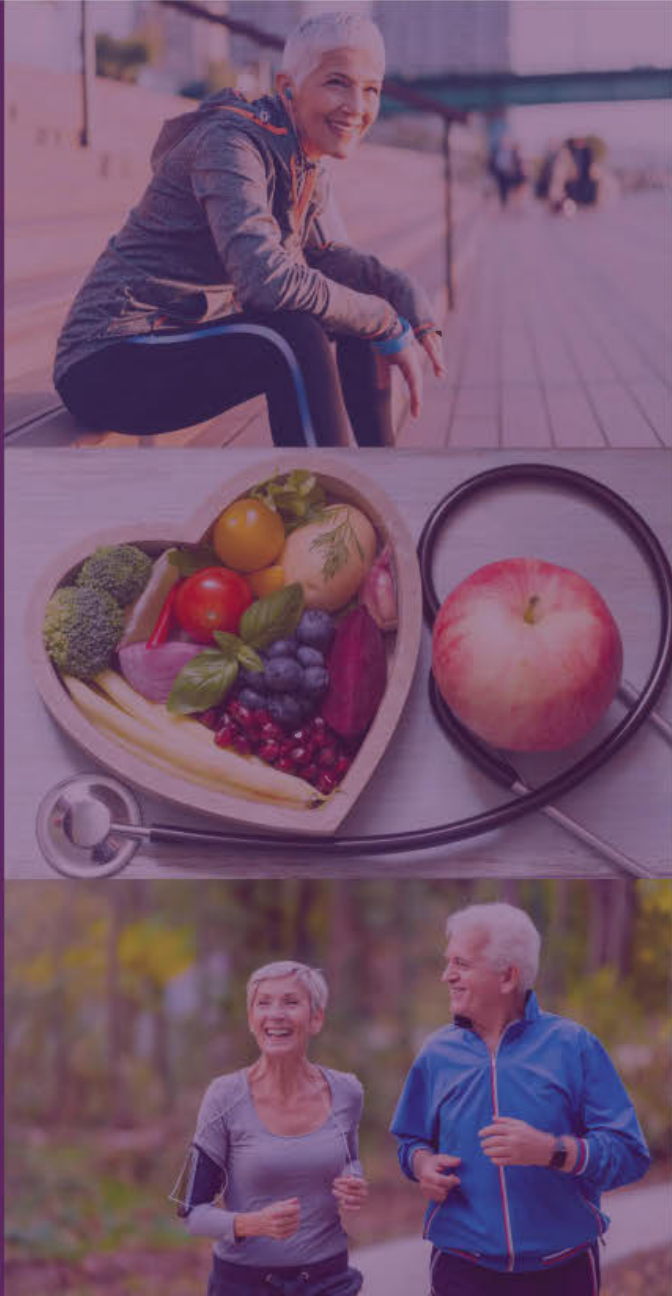
Analysis of the scenario planning outcomes found¹:

- No consensus on the future shape (and stability) of healthcare delivery.
 - **Recommendation:** Maximize health care provider career flexibility.
- Specialist mix distribution ideals were unclear due to scope and pace of change in technological, economic, and societal issues
 - **Recommendation:** Reform the medical education system so it can supply a wide distributions of physicians by specialty.
- Increased diversity in medical delivery approaches made the current dichotomous workforce system (e.g. primary care vs. subspecialist) not a useful approach for planning the future of the medical profession and medical education.
 - **Recommendation:** Develop innovative, alternative medical delivery and education approaches, including interprofessional team-based health care incorporating two or more health professionals collaborating with patients, family caregivers, and community service providers on shared goals within and across settings to achieve care that is safe, effective, patient-centered, timely, efficient, and equitable.

¹*What will the Medical Workforce of the Future Look Like?* Nasca, Thomas. Accreditation Council for Graduate Medical Education.

Setting the Context: The Bottom Line

The ongoing low prioritization of lifestyle factors has significant contributors to NCDs at a high cost to the health and wellbeing of individuals, communities, and the nation. There is substantive data underlining the importance of educating physicians in lifestyle medicine components.



The Need for Lifestyle Medicine

Substantive evidence supports the influence of lifestyle on overall health, the significant cost of preventable NCDs, the need for attention to lifestyle medicine components.¹ Despite this data, there is insufficient training, structure, incentive, and support to enable physicians to effectively address lifestyle in the clinical setting.²

- Substantive population studies demonstrate that adopting a healthy lifestyle may prevent:³
 - 90% of all heart disease (including 81% of heart attacks)
 - 50% of strokes
 - 93% of diabetes
 - 36% of cancers
- Traditional healthcare and payment models provide little incentive or infrastructure for health promotion and disease prevention/management through lifestyle counseling.
- Current health care models primarily address NCDs via expensive pharmaceuticals and medical procedures with little emphasis on lifestyle behavior modification.

¹ *Teaching Nutrition and Physician Activity in Medical School: Training Doctors for Prevention-Oriented Care.* Bipartisan Policy Center.

^{2,3} *Physician Competencies for Prescribing Lifestyle Medicine.* Johnson, Lianov. JAMA.



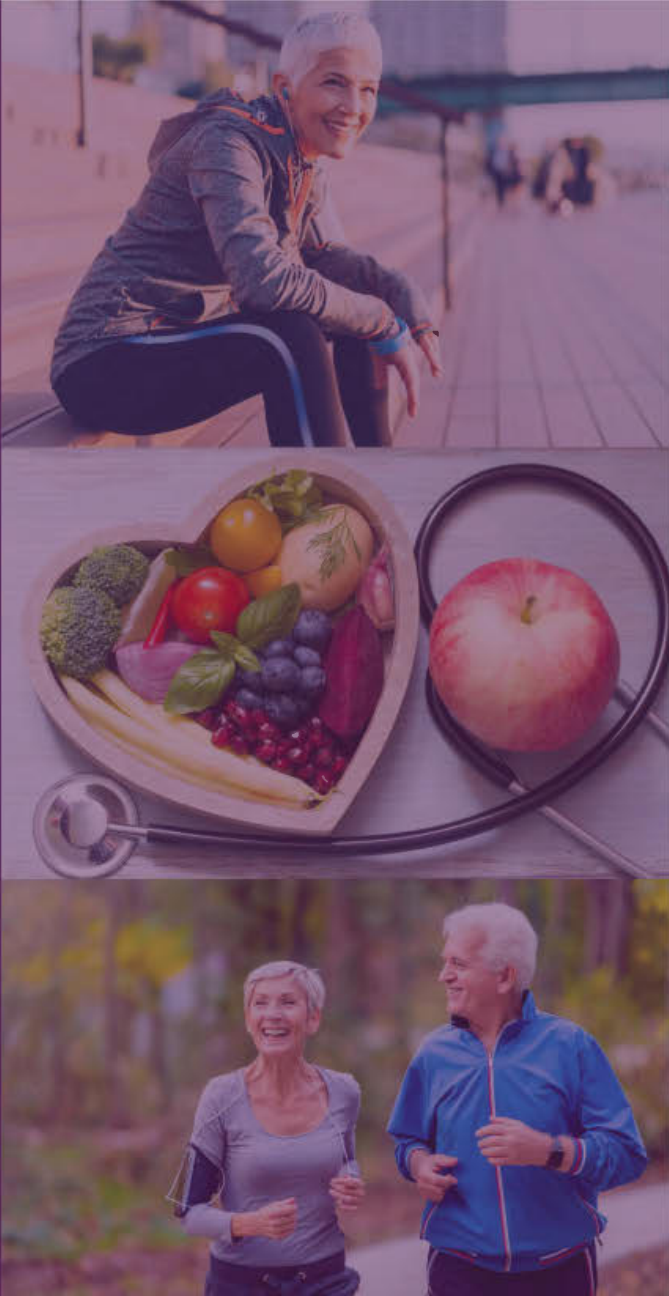
The Need for Lifestyle Medicine (cont')

Shifting U.S. health care from disease management to health promotion and prevention at the physician-level:

- Current clinical care guidelines cite nutrition and "healthy lifestyle" as a primary intervention and primary and secondary prevention for cardiovascular disease, but clinicians are unable to put these guidelines into practice without proper training, support, and incentives.¹
- Additionally, physician visits are ideal opportunities to reinforce the message that attention to nutrition and lifestyle are critically necessary for optimal health and that medications alone, however important, will rarely be sufficient.²
- To ensure physicians can effectively counsel patients on positive lifestyle behaviors and make referrals and understand social determinants of health, a significant increase in knowledge, skill, and confidence is needed for many practicing and future physicians.³

^{1,2} *Teaching Nutrition and Physician Activity in Medical School: Training Doctors for Prevention-Oriented Care.* Bipartisan Policy Center.

³ *Physician Competencies for Prescribing Lifestyle Medicine.* Johnson, Lianov. JAMA.



What is Lifestyle Medicine?

- **American College of Preventive Medicine:** Lifestyle medicine is a medical approach that uses evidence-based behavioral interventions to treat and manage chronic diseases related to lifestyle. Lifestyle factors include nutrition, physical activity, stress management, sleep, social support and environmental exposures.¹
- **American Medical Association:** Lifestyle medicine is the evidence-based practice of assisting individuals and families to adopt and sustain behaviors that can improve health and quality of life.²
- **American College of Lifestyle Medicine:** Lifestyle medicine is an evidence-based approach to preventing, treating and even reversing diseases by replacing unhealthy behaviors with positive behaviors including, eating healthfully, being physically active, managing stress, avoiding risky substance abuse, adequate sleep and having a strong support system. The Association of American Medical Colleges named lifestyle medicine as an “emerging medical specialty” due to its significance in the prevention and treatment of chronic diseases, along with the rising demand.³
- **Northwestern University Feinberg School of Medicine:** Lifestyle medicine incorporates key practices that are associated with maintenance of health and prevention and treatment of disease. The key practices includes eight components, nutrition, physical activity, smoking, substance use, sleep, stress, behavior change, and body weight.⁴

¹ Including Lifestyle Medicine in Medical Education: Rationale for American College of Preventive Medicine. Trilk, Jennifer et al., American Journal of Preventive Medicine.

² Physician Competencies for Prescribing Lifestyle Medicine. Johnson, Lianov. *JAMA*.

³ What is Lifestyle Medicine. American College of Lifestyle Medicine.

⁴ Description and Early Outcomes of a Comprehensive Curriculum Redesign at the Northwestern University Feinberg School of Medicine. Academic Medicine.





The Need: Bottom Line

Training in lifestyle medicine components, particularly nutrition, physical activity, smoking cessation, sleep, and stress management, can provide current and future physicians with the knowledge and skills to better meet social needs. However, the inclusion of lifestyle medicine components in medical education is not universal, consistent, or highly valued.



Initiatives to Include LM Components in UME

Since 1975, a multitude of initiatives have attempted to advance the inclusion of lifestyle medicine components into medical education. Although gains have been made, progress has been slow and individual initiatives have failed to gain the traction necessary for transformation.

- **June 1975:** Journal of Medical Education article recognizes for the first time a lack of training about physical activity for physicians. The survey revealed only 16% of schools offered curriculum about exercise. ¹
- **Over 45 years:** 50+ organizations have participated in various initiatives to include lifestyle medicine components into UME
- **2000s:** Efforts have not resulted in widespread transformation to include lifestyle medicine components in UME.

¹ Lifestyle Medicine Education. Polak, R. American Journal of Lifestyle Medicine.

Timeline of Initiatives

Timing	Activity	Intent/Outcomes
June 1975	Journal of Medical Education publishes “Will physicians of the future be able to prescribe exercise?”	Recognized for the first time the lack of training provided physicians related to physical activity. The survey published revealed only 16% of schools offered curriculum geared towards exercise
1980’s	Nutrition in Medicine (NIM) program developed at the University of North Carolina, Chapel Hill	Web-based interactive medical nutrition education teaching tool with case studies offered free of charge to all US medical schools
1983	Prototype of a National Nutrition Test Item Bank developed at the University of Alabama Birmingham in conjunction with the American Society of Clinical Nutrition Committee on Nutrition Education	Deemed as viable to address student assessments for nutrition. Since then many websites are now available offering lectures, content, and access to peer reviewed materials
1985	National Academy of Sciences releases the National Research Council report on Nutrition Education in U.S. Medical Schools based on a survey of 45 U.S. medical schools	NAS recommends at least 25 hours of nutrition education in undergraduate medical education (UME)
1989	The American Society for Clinical Nutrition’s Committee on Medical/ Dental School and Residency Nutrition Education publishes: "Priorities for nutrition content in a medical school curriculum: a national consensus of medical educators"	ASCN Committee issues recommendation for a minimum of 44 hours of nutrition education in UME
1990	U.S. Congress passed the National Nutrition Monitoring and Related Research	Mandates “that students enrolled in United States medical schools and physicians practicing in the United States have access to adequate training in the field of nutrition and its relation to human health”
1995	Nutrition in Medicine (NIM) Project launches 29-unit curriculum covering basic science content and clinical application	Has aided the development and distribution of nutrition curriculum for medical students through comprehensive online courses free of charge

Timeline of Initiatives (cont'd)

Timing	Activity	Intent/Outcomes
1995	American Society for Clinical Nutrition's (ASCN) Committee on Clinical Practice Issues in Health and Disease releases a report concluding that there is a vital clinical and educational leadership role for physicians specializing in nutrition in medical school–affiliated training facilities	Recommended that each major medical center should have on its faculty at least one physician nutrition specialist who has a full-time commitment to nutrition to create the necessary teaching environment.
1996	Agency for Health Care Policy and Research (AHCPR) publishes the Smoking Cessation Clinical Practice Guideline , a summary document based on more than 3,000 articles on tobacco treatment published between 1975 and 1994.	Provides recommended guidelines for primary care clinicians, smoking cessation specialists, and health care administrators, insurers, and purchasers.
1998-2005	Nutrition Academic Award (NAA) launches, providing 21 medical schools with funding to develop educational efforts focused on advancing the diet-related guidelines of the National Cholesterol Education Program organized and developed by the NHLBI.	Curricular objectives, teaching tools, assessment methodologies, and examination questions for the National Board of Medical Examiners (NBME) related to nutrition were developed and implemented
2000	The Tobacco Use and Dependence Clinical Practice Guideline Update Panel publishes the Treating Tobacco Use and Dependence: Clinical Practice Guideline , a summary document based on more than 6,000 articles published between 1975 and 1999.	Recommendations for brief clinical interventions, intensive clinical interventions, and system changes to promote the treatment of tobacco dependence.
2005	World Health Organization-Framework Convention on Tobacco Control (WHO-FCTC) promoted several policies to tackle the tobacco epidemic, including Article 14	Article 14 directed countries to implement smoking cessation services and calls on healthcare workers (HWs) and organizations to promote smoking cessation and offer support to tobacco users.

Timeline of Initiatives (cont'd)

Timing	Activity	Intent/Outcomes
2006	Personal Health Investment Today Act (PHIT) was introduced in Congress	Legislation that would allow the use of pre-tax accounts, like Health Savings Accounts (HSA) and Flexible Savings Accounts (FSA), to pay for qualified fitness expenses, including youth sports fees, exercise equipment, and health club memberships. Legislation did not pass.
2006	Boston University School of Medicine (BUSM) created a novel model of medical nutrition education involving students and including student-mentored extracurricular activities to develop, evaluate, and sustain nutrition medicine education	Teaching hours in nutrition increased by >5-fold at BUSM, with >108 h of nutrition-related content in the curriculum in 2017–2018. Subsequently, >80% of the NAA curriculum guide was covered across 4 y of UME at BUSM
Aug. 2007	Association of American Medical Colleges Releases "Contemporary Issues in Medicine: The Prevention and Treatment of Overweight and Obesity Medical School Objectives Project"	Recommends that current and future physicians must be better informed about the science of weight regulation and be prepared to work effectively with increasing populations of overweight and obese patients to decrease their health risks.
2008	Tobacco Use and Dependence Guideline Panel issued an update to the 2000 <i>Clinical Practice Guideline</i> document, Treating Tobacco Use and Dependence: 2008 Update , expanding previous summaries by reviewing an additional 2,700 articles.	Provides updated strategies and recommendations designed to assist clinicians, tobacco dependence treatment specialists, and health care administrators, insurers, and purchasers in delivering and supporting effective treatments for tobacco use and dependence.
2008	WHO releases 2008–2013 Action Plan for the Global Strategy for the Prevention and Control of Noncommunicable Diseases	Provides an action plan to prevent and control the 4 NCDs— cardiovascular diseases, diabetes, cancers, and chronic respiratory diseases and the 4 shared risk factors— tobacco use, physical inactivity, unhealthy diets, and the harmful use of alcohol.

Timeline of Initiatives (cont'd)

Timing	Activity	Intent/Outcomes
July 2009	Blue Ribbon Panel on Lifestyle Medicine (AMA, AOA, AAFP, ACP, AAP, ACPM, ACLM and individual experts) convene in Washington	Garnered consensus on a competencies outline intended to provide a minimum guideline for all physicians—especially primary care physicians.
2010	Northwestern University Feinberg School of Medicine launches a redesign of its UME curriculum, with the first class matriculating in 2012	Lifestyle Medicine was designated as one of five essential threads and incorporates key practices that are associated with maintenance of health and prevention and treatment of disease.
July 2010	JAMA published “Physician Competencies for Prescribing Lifestyle Medicine”	Outlined recommended competencies for all physicians in addressing the lifestyle causes and treatments for most medical problems in modern society, including categories of leadership, knowledge, assessment skills, management skills, and use of office and community support as competencies needed for graduating medical professionals.
Dec. 2010	Healthy People 2020 launches	Identified the four lifestyle behavior/risk factors as one of five determinants of health alongside environment, social, health care and genetics/biology.
2012	NHLBI host a workshop to review the contributions of the Nutrition Academic Award (NAA), an initiative conducted among 21 medical schools from 1998 to 2005	Formulated a framework for optimal adaptation of the NAA curriculum guide within the physician training education model.
2012/ 2013	USC SOM Greenville launches its lifestyle medicine curriculum to provide required undergraduate medical student training with a graduating program-level goal to, “Deliver total health care using lifestyle medicine to prevent and treat morbidity and mortality related to chronic diseases”	Success of the lifestyle medicine Core Curriculum, including faculty buy-in, increased student candidate interest, and greater recognition in the academic medical community, subsequently led to strategic planning by the Dean to offer a lifestyle medicine Distinction Track that began in May 2018.

Timeline of Initiatives (cont'd)

Timing	Activity	Intent/Outcomes
Sept. 2013	USC SOM Greenville and the Institute of Lifestyle Medicine at Harvard Medical School hosted the first national invitational lifestyle medicine in U.S. Medical Education Think Tank supported by the Josiah Macy Jr Foundation	Thought leaders and experts gathered to explore the idea of making LM a formal part of medical school curricula and decided that “nutrition, exercise, behavior change, and student self-care” are influential content areas that are still underrepresented (or not represented at all) in medical education.
2013	Affordable Care Act , which requires health insurers to cover recommended preventive services	
2013	The United States National Physical Activity Plan © launches	Advocates the promotion of physical activity education in the training of all health care professionals.
2013	Bipartisan Policy Center issues report: “Lots to Lose: How America's Health and Obesity Crisis Threatens our Economic Future”	Proposes that ‘nutrition and physical activity training should be incorporated in all phases of medical education: medical schools, residency programs, credentialing processes, and continuing education requirements.”
2013	American Academy of Family Physicians (AAFP) launches the Champions Tobacco Cessation FQHC Project	Federally Qualified Health Centers (FQHC) were trained to implement systems changes and integrate tobacco cessation activities into daily office routines.
March 2014	AAMC publishes: Nutrition education in medical school: a time of opportunity	Calls for greater incorporation of behavioral and social sciences into medical school and training curricula, as well as for competencies related to behavior counseling.

Timeline of Initiatives (cont'd)

Timing	Activity	Intent/Outcomes
April 2014	Education and Training (EAT) for Health Act (2014) is introduced to the House of Representatives and referred to the Committee on Energy and Commerce and then to the Subcommittee on Health. Sponsored by Rep. Raul M. Grijalva (D-AZ)	Directs the Secretary of Health and Human Services (HHS) to issue guidelines to federal agencies for developing procedures and requirements to ensure that every primary care health professional employed full-time for such agencies have at least six credits of continuing medical education courses relating to nutrition. Requires these to include at least courses on the role of nutrition in the prevention, management, and, as possible, reversal of obesity, cardiovascular disease, diabetes, and cancer. Bill was not enacted.
June 2014	The Bipartisan Policy Center releases white paper: " Teaching Nutrition and Physical Activity in Medical School: Training Doctors for Prevention-Oriented Care "	Summarizes a 2013 panel discussion that included representatives from the BPC, AHG, ACSM, etc, calling directly to 'develop and implement a standard nutrition and physical activity curriculum' for medical students
Aug. 2014	Second convening of the Lifestyle Medicine Think Tank , sponsored by the Ardmore Institute of Health, held in August 2014 in Boston, MA.	Thought leaders and experts gathered to discuss the key tactics and strategies for implementing lifestyle into medical education..
Jan. & Aug. 2015	Lifestyle Medicine Education Collaborative (LMEd) host additional meetings with the Bipartisan Policy Center in Washington, DC (January) and with USC SOM Greenville, Harvard Medical School, Western University of Health Sciences -College of Osteopathic Medicine of the Pacific and others (AAMC, ACLM, ACSM, ACPM, AMSA, BPC, LCME, NBME, NCPPA, NIH, NextGenU in Boston, MA (August)	Continued implementation work and development of publications to summarize LMEd's work in 2015 & 2016.
2015	American Academy of Family Physicians (AAFP) launches the Office Champions Behavioral Health Tobacco Cessation Project	Provides facts and resources related to tobacco cessation for patients with mental illness.

Timeline of Initiatives (cont'd)

Timing	Activity	Intent/Outcomes
July 2015	LMEd launches its first website	Goal: (1) connecting and communicating champions and adopters of lifestyle medicine in medical education who want guidance, leadership, and mentoring through dissemination of materials and (2) networking for educators to share resources.
2015	The concept, vision, and mission of LMEd were introduced at major annual conferences throughout the year	ASSM, AACOM, STFM, ACSM, ACLM, AHA, AAMC. During the AAMC conference, a two-hour symposium occurred to assist professionals involved in undergraduate medical education in understanding the importance, identifying and overcoming barriers, and investigating ways for medical schools to incorporate a lifestyle medicine curriculum into their programs.
February 2015	Lifestyle Medicine Education Think Tank participating organizations publish: "Including lifestyle medicine in undergraduate medical curricula" in the Medical Education Online	Proposed areas of focus were determined to be: 1) supporting of deans and key personnel, 2) creation of federal and state policy commitments, 3) use of assessment as a driver of LM, 4) provision of high-quality evidence-based curricular material on an easily navigated site, and 5) engaging student interest. Implementation strategies for each focus area will be addressed in an upcoming planning meeting in early 2015.
Oct. 2015	Nutrition Education Act was re-introduced to the House of Representatives by Rep. Matt Cartwright (D-PA)	Legislation not enacted by the end of a Congress and is cleared from the books.

Timeline of Initiatives (cont'd)

Timing	Activity	Intent/Outcomes
2016	American Heart Association released a scientific statement, "Medical Training to Achieve Competency in Lifestyle Counseling: An Essential Foundation for Prevention and Treatment of Cardiovascular Disease and Other Chronic Medical Conditions"	Proposes a framework for U.S. medical school deans/ program directors to integrate learning objectives that will improve lifestyle counseling competency among future physicians.
May - Sept. 2016	LMEd hosts four webinars to provide resources to deans, administration, and faculty and to increase national awareness of the Collaborative:	Raise awareness of LMEd and the importance in UME.
Oct. 2016	Lifestyle Medicine Education Collaborative hosts its first annual LMEd summit	Purpose is to increase national awareness and support participating schools to develop "RoadMaps to Success."
Sept. 2017	National Heart, Lung, and Blood Institute (NHLBI) of the NIH conducts workshop with an interdisciplinary team of over 50 clinicians and educators with expertise in nutrition, medical students, and other healthcare professionals with expertise in academic medicine.	Advance the inclusion of nutrition into medical education.
Oct. 2017	American Board of Lifestyle Medicine launches its certification exam	Physicians can now become board certified specialists in Lifestyle Medicine.
2017	Lifestyle Medicine Core Competencies Program launched	30 hours of continuing medical education program provided through a partnership between ACLM/American College of Preventive Medicine.

Timeline of Initiatives (cont'd)

Timing	Activity	Intent/Outcomes
2017	American Medical Association House of Delegates (AMA HODs), releases Resolution 959 (I-17), introduced by ACPM	Resolution states: “Our AMA supports policies and mechanisms that incentivize and/or provide funding for the inclusion of lifestyle medicine education and social determinants of health in undergraduate, graduate and continuing medical education.”
March 2017	ENRICH Act , co-sponsored by Tim Ryan (D-Ohio) and Pat Tiberi (R-Ohio), introduced to Congress on March 7 . ENRICH is supported by Physicians’ Committee for Responsible Medicine (PCRM)	Bill proposed would provide federal grants to develop or enhance integrated nutrition curricula in U.S. medical schools. The bill was not enacted.
March 2017	EAT for Health Act reintroduced to the House of Representatives and referred to the Subcommittee on Health (03/24/17)	Bill died/failed/was vetoed (12/31/18).
June 2017	Harvard Medical School releases a report by medical educators	Proposes a major restructuring of UME to graduate “science-minded” and “service-minded” physicians with the capacity to advance population health, particularly in poor and underserved areas.
July 2017	Nutrition Education Act was re-introduced to the House of Representatives by Rep. Matt Cartwright (D-PA) for the 3rd time	Legislation not enacted by the end of a Congress is cleared from the books.
Sept. 2017	The Permanente Journal publishes: Lifestyle Medicine: A Brief Review of Its Dramatic Impact on Health and Survival	Summarizes the strong case for the impact of lifestyle on health and wellness and makes recommendations for moving forward to ensure physicians and patients have the tools to make healthy lifestyle choices.
2018	Physicians’ Committee for Responsible Medicine (PCRM) forwards the ENRICH Act now before Congress	Seeks dedicated funding for nutrition and exercise taught in U.S. medical schools.

Timeline of Initiatives (cont'd)

Timing	Activity	Intent/Outcomes
April 2018	American Heart Association publishes: Medical Nutrition Education, Training, and Competencies to Advance Guideline-Based Diet Counseling by Physicians: A Science Advisory From the AHA	Provides recommendations for integrating nutrition into medical education core competencies and EPAs.
2018	American Heart Association also releases “Medical Nutrition Education, Training, and Competencies to Advance Guideline-Based Diet Counseling by Physicians”	Identifies specific nutrition competencies and information for heart disease prevention with resources for implementing nutritional education.
2018	Report by the U.S. Burden of Disease Collaborators is released	Identifies poor-quality diet as the leading cause of death in the U.S.
July 2018	ACGME releases updated Common Program Requirements for both residency and fellowship training	As in previous versions, the documents lack a requirement for physicians-in-training to learn about nutrition or diet.
July 2018	American Association of American Medical Colleges (AAMC) recognizes Lifestyle Medicine as one of five “emerging medical specialties” due to its significance in the prevention and treatment of chronic diseases along with the rising demand for doctors trained in this field	Elevate the importance of Lifestyle Medicine as a specialty.
July 2018	The Personal Health Investment Today Act (PHIT) is reintroduced and passes the House of Representatives for the first time	Did not make it to a vote in the Senate before before the 115th Congress was cut short due to the government shutdown.
March 2019	<u>H.R. 1888: ENRICH Act</u> reintroduced to Congress on March 26	Will typically be considered by committee next before it is possibly sent on to the House or Senate as a whole. It has a 3% chance of being enacted according to Skopos Labs .

Timeline of Initiatives (cont'd)

Timing	Activity	Intent/Outcomes
March 2019	The Personal Health Investment Today Act (PHIT) is reintroduced in the House by Representative Ron Kind (D-WI) and Representative Mike Kelly (R-PA) and in the Senate (S.680) by Senator John Thune (R-SD) and Senator Chris Murphy (D-CT)	Outcome as yet undecided. Initiative has bipartisan support and is further supported by the PHIT Coalition led by IHRSA
May 2019	The Personal Health Investment Today Act (PHIT) Coalition, led by IRHSA held a lobbying day in Washington to garner support for the bill	PHIT Coalition members attended 50 meetings House representatives or their staff to solicit co-sponsorships of the Personal Health Investment Today (PHIT) Act
Dec. 2019	Ardmore Institute & the University of Pittsburgh host the Lifestyle Medicine Research Summit : From Molecule to Model December 4-5, 2019	The Summit's goal was to define research priorities in the core areas of lifestyle medicine, namely nutrition, physical activity, mindfulness/stress/resilience, social relationships, addictions and sleep



Current State of LM in UME: Accreditation

Inclusion of LM Curriculum into the Liaison Committee on Medical Education (LCME) Accreditation Standards

Medical education programs leading to the MD degree in the United States are accredited by LCME based on 12 standards, the standards relevant to incorporating lifestyle medicine components into UME curriculum are in bold:¹

- Standard 1: Mission, Planning, Organization, and Integrity
- Standard 2: Leadership and Administration
- Standard 3: Academic and Learning Environments
- **Standard 4: Faculty Preparation, Productivity, Participation, and Policies**
- Standard 5: Educational Resources and Infrastructure
- **Standard 6: Competencies, Curricular Objectives, and Curricular Design**
- **Standard 7: Curricular Content**
- **Standard 8: Curricular Management, Evaluation, and Enhancement**
- **Standard 9: Teaching, Supervision, Assessment, and Student and Patient Safety**
- Standard 10: Medical Student Selection, Assignment, and Progress
- Standard 11: Medical Student Academic Support, Career Advising, and Educational Records
- Standard 12: Medical Student Health Services, Personal Counseling, and Financial Aid Services

¹*Functions and Structure of a Medical School Standards for Accreditation of Medical Education Programs Leading to the MD Degree.* Liaison Committee on Medical Education.



LCME Accreditation Standards (*cont'd*)

Inclusion of LM Curriculum in LCME Accreditation Standards (*cont'd*)

Standard 4: Faculty Preparation, Productivity, Participation, and Policies articulates the expectation that “faculty members of a medical school are qualified through their education, training, experience, and continuing professional development and provide the leadership and support necessary to attain the institution's educational, research, and service goals.”¹

- In order to effectively incorporate lifestyle medicine components into UME, faculty will need to have the appropriate experience and training. Lack of faculty training, experience, and continuing education in lifestyle medicine components is a potential barrier to the inclusion of these components into UME.²

Standard 6: Competencies, Curricular Objectives, and Curricular Design mandate that medical education programs must define competencies to be achieved by medical students that are supported by clear program and learning objectives, required clinical experiences, self-directed and life-long learning, inpatient/outpatient experiences, and other learning opportunities.¹

- This standards provides insights into the variety of opportunities available when considering how, where, and to what extent lifestyle medicine components could be incorporated into UME.



LCME Accreditation Standards (*cont'd*)

Inclusion of LM Curriculum in LCME Accreditation Standards (*cont'd*)

Standard 7: Curricular Content articulates the expectation for medical curriculum to include content and clinical experiences related to each organ system; each phase of the human life cycle; continuity of care; and **preventive**, acute, **chronic**, rehabilitative, end-of-life, and primary care in order to prepare students to:¹

- Recognize wellness, determinants of health, and **opportunities for health promotion and disease prevention**
- Recognize and interpret symptoms and signs of disease
- Develop differential diagnoses and treatment plans
- Recognize the potential health-related impact on patients of behavioral and socioeconomic factors
- Assist patients in addressing health-related issues involving all organ systems

This is the only standards that provides direction on what content areas or topics should be covered in an accredited medical education program.



LCME Accreditation Standards (*cont'd*)

Inclusion of LM Curriculum in LCME Accreditation Standards (*cont'd*)

Standard 8: Curricular Management, Evaluation, and Enhancement require “faculty of a medical school to engage in curricular revision and program evaluation activities to ensure that that medical education program quality is maintained and enhanced and that medical students achieve all medical education program objectives and participate in required clinical experiences and settings.”¹

- This standard provides an opportunity to include lifestyle medicine components into UME curricula revisions, based on their relevance to competencies physicians need to have in order to effectively meet the needs of current and future patients

Standard 9: Teaching, Supervision, Assessment, and Student and Patient Safety outlines requirements to ensure the inclusion of formative and summative student assessments in medical education, as well as measures to protect students’ and patients’ safety through the adequate preparation of faculty, supervisors, and student assessors.²

- Successful inclusion of lifestyle medicine components into UME will require appropriate:
 - Student assessments and evaluations in related learning objectives
 - Appointment and preparation of qualified faculty and supervisors prepared to support students in classroom and clinical education



LCME Accreditation Standards (*cont'd*)

Nutrition is the only LM component included in the list of standard medical school topics, although physical activity, tobacco control, substance abuse treatment, and behavior modification may be embedded in other topics.¹

Competency in the following curricular content areas is required for graduation from UME and matriculation into residency programs:²

- Biomedical, behavioral, social sciences
- Organ systems/life cycle/prevention/symptoms/signs/differential diagnosis, treatment planning
- Scientific method/clinical/translational research
- Critical judgment/problem-solving skills
- Societal problems
- Cultural competence and health care disparities
- Medical ethics
- Communication skills
- Interprofessional collaborative skills

Curricular content is distributed throughout the following standard medical school topics: Anatomy, Behavioral Sciences, Biochemistry, Biostatistics, Cell Biology, Clinical Skills, Embryology, Epidemiology, Ethics, Evidence-Based Medicine, Genetics, Immunology, Histology, Microbiology, Neuroscience, **Nutrition**, Organ System Pathophysiology, Pathology, Pharmacology, Physiology, and Radiology.





Current State of LM Curriculum in UME

Inclusion of Lifestyle Medicine Curriculum in UME Curriculum

- In 1985, the National Academy of Sciences (NAS) introduced a recommendation for a minimum of 25 classroom hours related to nutrition. The American Society for Clinical Nutrition's Committee on Medical/Dental School and Residency Nutrition Education recommended a minimum of 44 hours.¹
- A 2010 survey of U.S. medical schools found nutrition education was inadequately or unevenly covered throughout all levels of medical training, including undergraduate, post-graduate, fellowship, licensing, board certification, and continuing education.
 - Accredited medical schools are required to provide a minimum 130 weeks of instruction, average is 157 weeks (approx. 2600 - 3140 classroom hours).²
 - Currently, an average of 19 hours over 4 years is dedicated to nutrition in UME, focused largely on biochemistry and vitamin deficiency states.³
 - Only 26 percent of the medical schools who responded to the 2010 survey met the minimum recommendation of 25 hours set by NAS in 1985.⁴

(NOTE: 86% of the total number of accredited medical school responded to the survey)

¹ *Advancing Nutrition Education, Training, and Research for Medical Students, Residents, Fellows, Attending Physicians, and Other Clinicians: Building Competencies and Interdisciplinary Coordination*. Advances in Nutrition, Nov. 2019.

² AAMC, *Curriculum Reports*, <https://www.aamc.org/data-reports/curriculum-reports/interactive-data/content-documentation-independent-course-or-part-integrated-course>

^{3,4} *Nutrition Education in U.S. Medical Schools: Latest Update of a National Survey*, Academic Medicine, Vol. 85, No. 9 / September 2010



LM Curriculum in UME (cont'd)

Inclusion of Lifestyle Medicine Curriculum in UME Curriculum (cont'd)

- According to a 2015 survey of U.S. Medical Schools offering a 4-year curriculum, 71% of respondents (91% of medical schools) fail to provide the recommended minimum 25 hours of nutrition education, 36% provide fewer than 12 hours, 9% provide none.¹
 - Less than half of all schools report teaching any nutrition in clinical practice; practice accounts for an average of only 4.7 hours overall.
- Physical activity curriculum is also underrepresented in medical education.
 - A 2002 survey of U.S. allopathic medical schools found that only 13% included physical activity and wellness in the curriculum.²
 - 2012 review of 109 studies found that physical activity was the least addressed topic in health behavior counseling curricula for medical trainees in comparison to smoking, nutrition, alcohol, and drug use.³

^{1,2} including *Lifestyle Medicine in Medical Education: Rationale for American College of Preventive Medicine*. American Journal of Preventive Medicine

³ *Physical activity counseling in medical school education: a systematic review*. Med Educ Online.

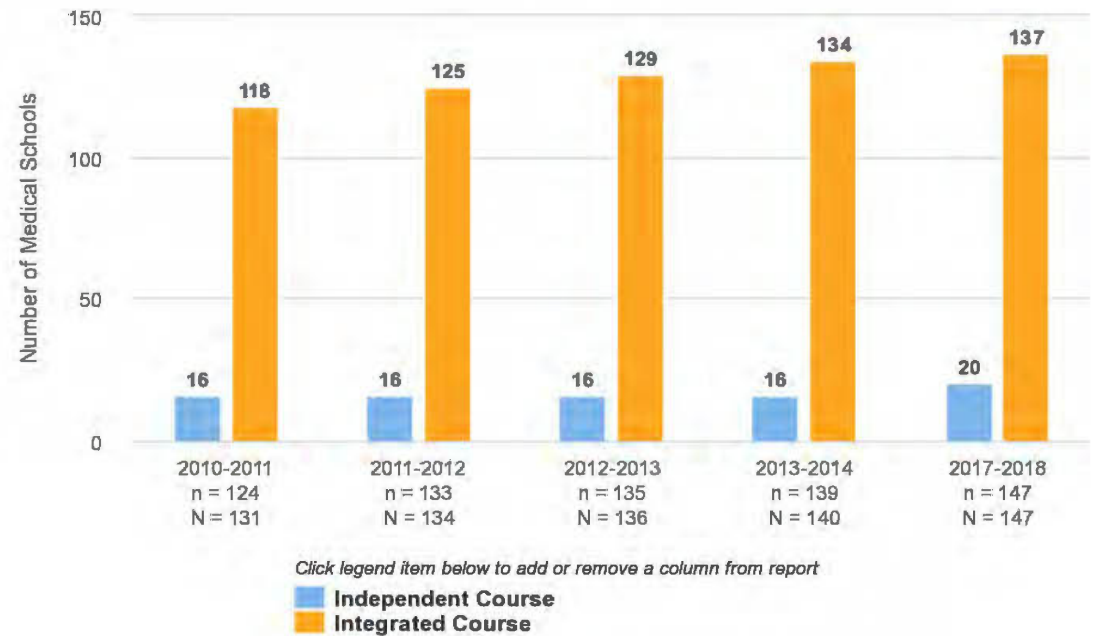
LM Curriculum in UME (cont'd)

Inclusion of LM Curriculum in Basic Science Medical School Curriculum

Surveys conducted by LCME involving 131-147 participant medical schools over an 8-year period indicate:¹

- From 2010 to 2018 more schools offered nutrition as a topic included in another core curriculum course (i.e. biochemistry) versus as an independent course.
- In 2017-2018, 20 out of 147 respondent schools Nutrition as an independent course – an increase from 16 out of 140 schools in 2013 – 2014.

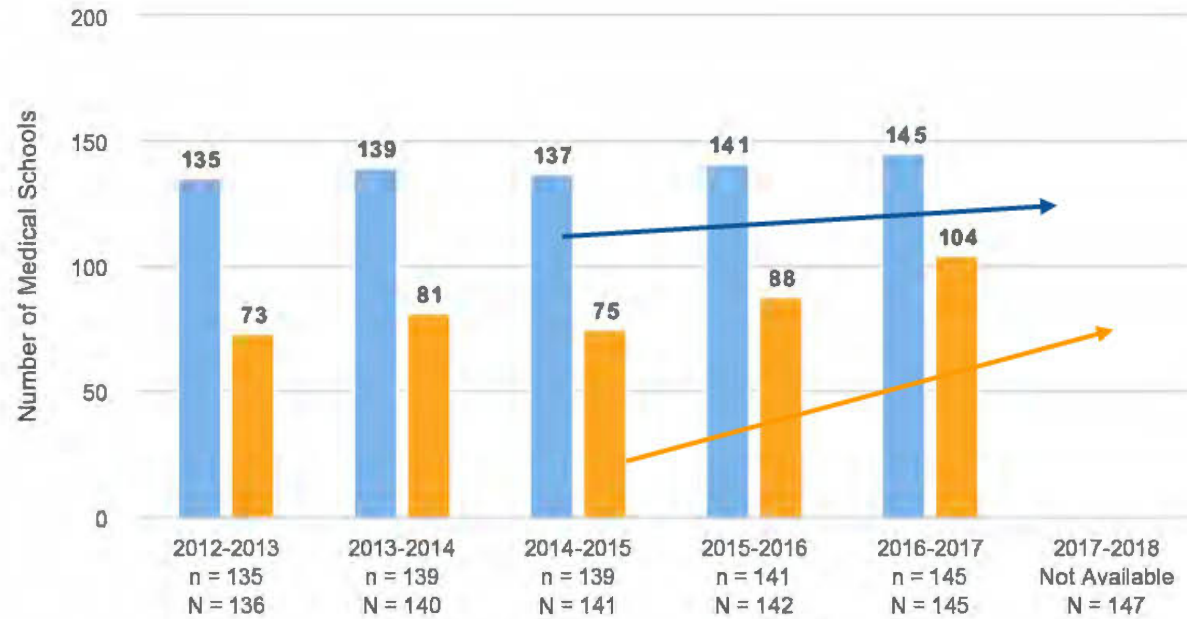
Number of Medical Schools Including Topic as an Independent Course or Part of an Integrated Course: Nutrition



*154 schools are accredited by LCME
n = the total number of medical schools that included the topic in either an independent course or as part of an integrated course in the given year.
N = the total number of medical schools that participated in the survey for the given year.

LM Curriculum in UME (cont'd)

Surveys conducted by LCME involving 131-147 participant medical schools over an 8-year period indicate the number of schools offering nutrition education as a required or elective course has increased year over year since 2014.¹



Click a legend item below to add or remove a column from the report.

- Required Course
- Elective Course

*154 schools are accredited by LCME
n = the total number of medical schools that included the topic in either an independent course or as part of an integrated course in the given year.
N = the total number of medical schools that participated in the survey for the given year.

¹Content Documentation as Independent Course or Part of an Integrated Course. Association of American Medical Colleges.



LM Curriculum in UME (cont'd)

Inclusion of LM Curriculum in Clinical Levels of Medical School Curriculum (M3 & M4)

- At the Clinical level of the medical education, in the 3rd and 4th year, lifestyle medicine can be chosen as an elective by medical students.¹
 - Data on the inclusion of sleep, exercise, tobacco cessation education or the other core competencies of LM in UME curriculum, both at the basic science and clinical level, was not found in the review of contact hours required.

Testing of Nutrition in US Medical Licensing Examinations (USMLE)

- Nutrition is tested in the following ways:²
 - A small percentage of nutrition is tested in the USMLE Step 1: generally under Biochemistry and Nutrition as a discipline and as a Multisystem Processes & Disorders (which comprises only 7-11% of the overall exam).³
 - Overall Biochemistry and Nutrition make up 12-15% of the USMLE Step 1 content. Of that 12-15%, only 20-25% of nutrition is tested.⁵
- 7-11% of preventive medicine is tested in Step 2 CK and focuses on Disease Prevention and Surveillance compared to 10-50% which focuses on Diagnosis, Prognosis and Outcome.⁴

¹24 Content Documentation as Independent Course or Part of an Integrated Course. Association of American Medical Colleges.

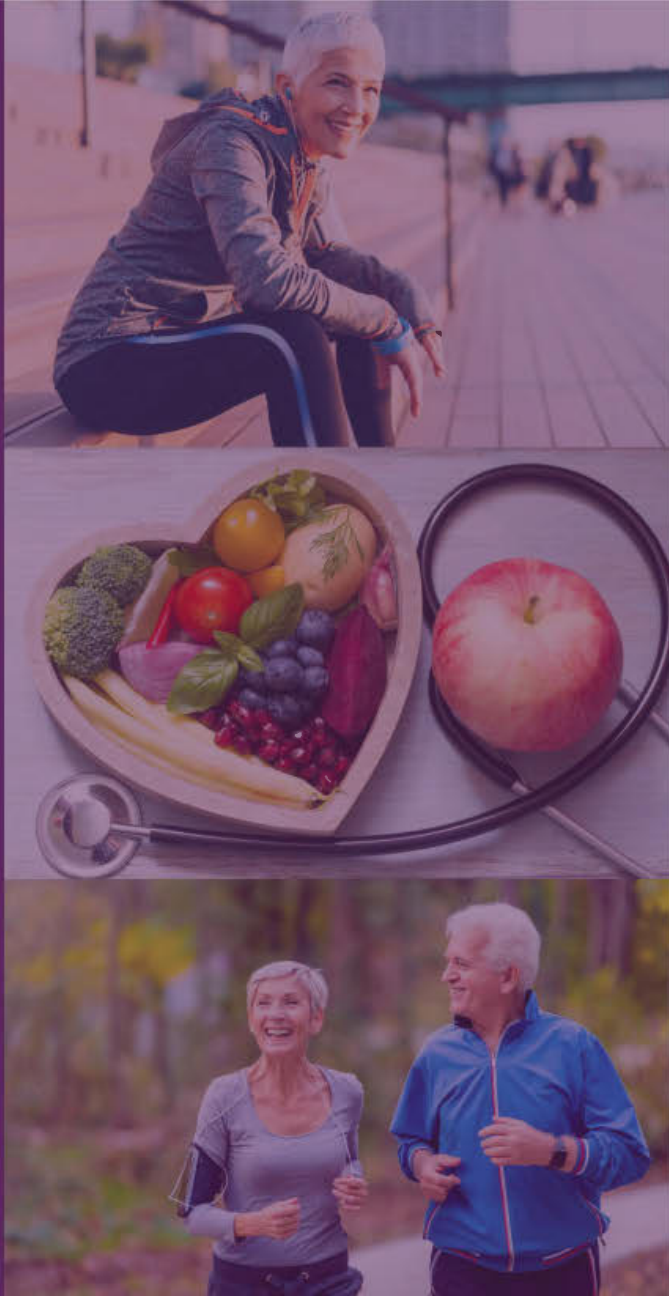
³Functions and Structure of a Medical School Standards for Accreditation of Medical Education Programs Leading to the MD Degree LCME

⁵Guide to the Subject Examination Program. NBME.

“Voices from the Field”

Physicians: Surveyed physicians believe it is their responsibility to educate patients on lifestyle modifications and to incorporate preventive medicine into patient care. Physicians report lack of knowledge, clinical skills, time, resources, and effective reimbursement models are major barriers to counseling patients about lifestyle interventions.¹

- In a 2017 survey of 646 cardiologists, 90% reported that they had not received adequate nutrition education to counsel their patients even though 95% believed it was their responsibility.
- Among the 620 respondents in a survey of family physicians, only 49% felt competent prescribing weight loss programs for obese patients.
- The same survey reported that patients are advised to lose weight only 36% of the time during regular examinations.
- Similar findings are reported for tobacco usage, as only 28% of smokers reported that health care professionals offered them assistance to quit smoking in the past year.





“Voices from the Field” (cont’d)

Residents: Survey studies demonstrate residents believe it is within their scope of practice to counsel patients on lifestyle but lack the qualifications to do so effectively.¹

- 77% of internal medicine residents acknowledged that nutrition discussions should be a part of primary care visits and 94% thought it their duty to address nutrition issues, however only 14% felt they had the necessary training.²
- 76% of residents knew physical fitness should be a priority and 88% understood the benefits however, less than 50% felt confident in their knowledge to create and implement the exercise prescription for their patients or even themselves.³
- 94% of residents surveyed at the 2015 ACLM conference considered the current medical education model to be insufficient and many of these residents were not familiar with the Lifestyle Medicine Core Competencies.⁴

Resident directors: 77% percent of ACGME Residency Program directors reported nutritional knowledge required for practice is not acquired through graduate medical education, acknowledging their own gaps in nutrition knowledge and skills.⁵

^{1,2,3,5} *Incorporating Lifestyle Medicine in Medical Education: Rationale for American College of Preventive Medicine.* Trilk, Jennifer et al., American Journal of Preventive Medicine.

⁴ *Predictors of nutrition counseling behaviors and attitudes in US medical students.* The American Journal of Clinical Nutrition.



“Voices from the Field”(cont’d)

Medical School Students: In 2003, surveyed medical students reported they do not receive adequate nutrition training in medical school. Students in a traditional curriculum that is deficient in lifestyle medicine training in pre-clinical years and in third- and fourth-year clerkships will have a gap in essential knowledge, skills, and attitudes needed to transition into residency.¹

- Results from the survey of U.S. undergraduate medical students from Year 1 to 4 demonstrated that most medical students came into school believing nutrition counseling and education was very important and would play a major role in their careers. However, by their fourth year:²
 - Less than 50% felt this to be true
 - 19% felt they had received adequate nutrition counseling training
 - 17% reported regular use of nutrition counseling in their patient encounters

Medical School Deans: 10% of surveyed deans perceive their students had the competency and skill to create and prescribe an exercise prescription for health and only 47% ranked this competency and skill as important.³



¹ Predictors of nutrition counseling behaviors and attitudes in US medical students. The American Journal of Clinical Nutrition.

^{2,3} Including Lifestyle Medicine in Medical Education: Rationale for American College of Preventive Medicine. Trilk, Jennifer et al., American Journal of Preventive Medicine

“Voices from the Field”(cont’d)

Clinics, Hospital Systems, and Health Insurance: The burden of noncommunicable chronic diseases on clinics, hospital systems, and health insurers across the U.S. is substantial.¹

- In 2005, Medicare attributes more than 99% of its expenditures to noncommunicable chronic diseases and Medicaid attributed more than 83% NS Individuals with noncommunicable chronic diseases accounted for 76% of all physician visits, 81% of hospital admissions, and 91% of prescription costs.
- The prevention on noncommunicable chronic diseases represents the potential to drastically reduce the amount of funds needed to treat chronically ill patients.
 - These savings may also create a trickle-down effect to consumers, who are currently faced with often impossible healthcare expenses, leaving many under- and uninsured.

¹Including Lifestyle Medicine in Medical Education: Rationale for American College of Preventive Medicine. Trilk, Jennifer et al., American Journal of Preventive Medicine.

LM Inclusion in UME: Bottom Line

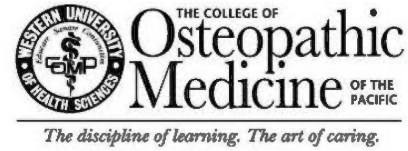
The lack of adequate knowledge of the core components of lifestyle medicine and how to effectively apply them to improve health outcomes is acknowledged at every level of the Medical field. There are opportunities to leverage the current state to build momentum in including LM in UME:

- Preventive medicine and health promotion is included in LCME accreditation standards
- There is a year over year increase in the number of schools including nutrition in UME curriculum
- Opportunities to include components of lifestyle medicine in existing curriculum
- There are high levels of awareness among physicians of the importance of lifestyle to overall health and their role in supporting patients in making good lifestyle choices - and of their gaps in effectively delivering on this task

Societies Driving Inclusion

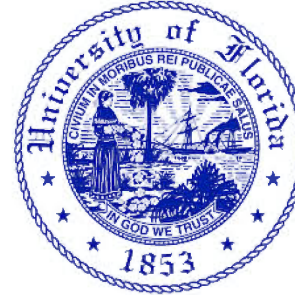


Academic Institutions Driving Inclusion



School of Medicine

The City College
of New York



Private/Public Institutions Driving Inclusion





Initiatives Driving Inclusion

The Association of American Medical Colleges (AAMC) convened an expert panel in March 2005 to develop a Medical School Objectives Project (MSOP) report on the prevention and treatment of overweight and obesity.¹

Identified barriers to Inclusion:

- Attitudes of clinicians
- Dearth of evidence supporting effective approaches to treat overweight and obesity in the primary care setting
- Health care system resistance to implementing practice approaches

Despite these barriers, the panel strongly affirmed the critical need to include overweight and obesity instructional themes into the medical school curriculum and recommends multi-disciplinary, intensive approaches.

¹Contemporary Issues in Medicine: The Prevention and Treatment of Overweight and Obesity. Association of American Medical Colleges.

Initiatives Driving Inclusion

In 2013 and 2014, two meetings were held to generate actionable strategies to equip future physicians to practice lifestyle medicine:¹

- The first meeting, A Lifestyle Medicine Think Tank, sponsored by the Institute of Lifestyle Medicine, Joslin Diabetes Center, Harvard Medical School, the Josiah Macy Jr. Foundation kicked off the initiative.
- The second meeting, sponsored by the Ardmere Institute of Health, focused on establishing key tactics and strategies for implementation.
- Participants at both meetings included medical school deans and students, content experts, and representatives of professional associations, government agencies, accreditation agencies, and national assessment boards.



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of Health



HARVARD
MEDICAL SCHOOL



UNIVERSITY OF
SOUTH CAROLINA
School of Medicine
Greenville



¹Including lifestyle medicine in undergraduate medical curricula. Med Educ Online.



Initiatives Driving Inclusion

The Lifestyle Medicine Think Tank participants worked to identify key stakeholders, principle areas of focus for curricula, and next steps for incorporating lifestyle medicine in medical schools. The next steps included:¹

- 1. Supporting of deans and key personnel:** *Lifestyle medicine curriculum will be made available to medical school deans and the collaborative will work with the curricular staff to include LM components as it works best with the current fixed curriculum.*
- 2. Engaging student interest:** *Medical students will be able to network with curricular staff, clinicians, and researchers through advocacy and participation in peer-led interest groups.*
- 3. Using assessment as a driver of lifestyle medicine:** *The National Medical Board of Examiners will identify, modify and add questions to represent the importance of lifestyle medicine components in medical practice.*
- 4. Providing evidence-based curricular material:** *A web-based platform will be developed to house readily available evidence-based resources for curriculum development.*
- 5. Creating federal and state policy commitments:** *A constituent group (members of the think tank, the Bipartisan Policy Center, and the American College of Sports Medicine) will form to open communication, inform local- and national-elected officials, and address potential necessary policy challenges.*

The second meeting ended with a plan to convene in January 2015, to develop further develop working groups, strategies, and tactics. See the Lifestyle Medicine Education Collaborative for more detail.

¹Including lifestyle medicine in undergraduate medical curricula. Med Educ Online.

Initiatives Driving Inclusion

The Lifestyle Medicine Education Collaborative (LMEd), launched in 2015, strives to alter the health care landscape by enhancing physician competency in lifestyle-related disease and value-based care and affecting the health of populations.¹

- LMEd’s comprehensive and sustainable approach to policies, programs, and initiatives to increase graduating US medical students’ knowledge and application of lifestyle medicine components. The strategic plan priorities are:
 - Provide high-quality curricular material
 - Solicit support of medical school deans, administration, and faculty
 - Influence federal and state policy through legislative briefs, journal level policy papers, coordination of mass media, lectures, and appearances on the Hill
 - Develop and conduct assessments
 - Support medical students as lifestyle medicine champions



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Institute
of Health



¹ Including lifestyle medicine in undergraduate medical curricula. Med Educ Online.

Initiatives Driving Inclusion



The Lifestyle Medicine Education Collaborative (LMEd) accomplishments include:¹

- Collaboration with Association of American Medical Colleges' MedEdPORTAL for the curation of a LM Collection of curriculum.
- Creation of a network of >350 members, including 80 medical schools, 33 hospitals/clinics, and 70 medical school faculty/administrators.
- Establishment of a relationship with the National Board of Medical Examiner's Customized Assessment Services to create a subject test in Lifestyle Medicine.
- National awareness is being increased through a series of webinars, the LMEd Summit (inaugural event in October 2016) and presentations at major annual medical conferences.

¹Including lifestyle medicine in undergraduate medical curricula. Med Educ Online.

Initiatives Driving Inclusion



The AMA House of Delegates, with support from the American College of Preventive Medicine, released Resolution 959 in 2017:¹

- The intended outcome was to help address the overwhelming morbidity and mortality related to lifestyle related, noncommunicable chronic diseases, and the devastating economic costs to U.S. health care.
- The resolution outlines the AMA's support for policies and mechanisms that incentivize and/or provide funding to include education on the components of lifestyle medicine and social determinants of health in undergraduate, graduate, and continuing medical education.
 - Health care providers need the necessary training and support to provide education and counseling to patients about lifestyle factors. **Foundational training begins in undergraduate medical education.**

¹Including Lifestyle Medicine in Medical Education: Rationale for American College of Preventive Medicine. Trilk, Jennifer et al., American Journal of Preventive Medicine.

Models for Including LM in UME

	Comprehensive Inclusion of LM	Track Inclusion of LM	Initiatives Including LM Components
Model Description	Across the undergraduate curriculum through all biomedical and clinical science modules that provide in-depth UME on lifestyle factors, including nutrition, physical activity, substance and tobacco use, stress management, sleep hygiene, and behavioral counseling.	Across the undergraduate curriculum through separate LM tracks that provide in-depth UME on lifestyle factors or one factor, primarily nutrition. Often connected to Family Practice Speciality	Fellowships, programs, or initiatives within the undergraduate curriculum that provide focused exposure to singular lifestyle factors, primarily nutrition.
Model Benefits & Outcomes	Offers the most significant improvement in student knowledge, skills, self-care, counseling, and patient outcomes related to lifestyle factors. The integration through many courses can dilute students' awareness of individual specialty practices.	Aligned with calls for more individualization in medical education. Emphasizes a particular professional practices or specialty.	Emphasizes a particular professional practice or specialty. Often provides opportunity to engage community health.
Model Schools	The University of South Carolina–Greenville School of Medicine Harvard School of Medicine Warren Alpert Medical School of Brown U. University of Nevada School of Medicine University of Wisconsin School of Medicine and Public Health City University of New York School of Medicine	Northwestern University Feinberg School of Medicine Western University of the Health Sciences College of Osteopathic Medicine of the Pacific Medical College of Wisconsin University of Colorado School of Medicine University of Texas Medical School at Houston Tulane School of Medicine	Loma Linda University Health University of Pittsburgh School of Medicine The University of Florida The University of North Carolina

Including LM at USCSOM Greenville

University of South Carolina School of Medicine Greenville ¹	Methodology of Inclusion	Key Elements	Outcomes	Challenges
<ul style="list-style-type: none"> Designed, developed, and implemented an innovative, formalized lifestyle medicine curriculum to provide required undergraduate medical student training Program-level goal: “Deliver total health care using lifestyle medicine to prevent and treat morbidity and mortality related to chronic diseases. 	<ul style="list-style-type: none"> Lifestyle medicine curriculum is required across the undergraduate curriculum and in all biomedical and clinical science modules. Healthy student behaviors are encouraged through faculty-supported extracurricular exercise/physical activities as well as year-round cultivation of the organic garden. 	<ul style="list-style-type: none"> Mechanisms that explain lifestyle-related physiology of disease/prevention treatment methods of health behavior change. Models of team-based care with exercise physiologists, registered dietitians, and wellness coaches. 	<ul style="list-style-type: none"> Total of 86.5 hours included in curriculum across all four years. Lifestyle Medicine Task Force Formed Lifestyle Medicine Special Interest Group and the Student Wellness Committee. 	<ul style="list-style-type: none"> Competition for time in the existing curriculum. Lack of available content experts. Perceived importance at the faculty level. Competition with what students perceive as “essential.” knowledge to pass the US Medical Licensing Exam.

¹Design and Implementation of a Lifestyle Medicine Curriculum in Undergraduate Medical Education. American Journal of Lifestyle Medicine.



USCSOM Greenville: Process of Inclusion

- **Step 1: Analysis and Planning Phase**

- Review the teaching and learning environment, the learners, the culture among biomedical and clinical faculty, and the institution's attitude regarding adoption of new educational goals beyond the traditional medical curriculum.
- Identify faculty change agents by discipline to assist in integration and teaching of lifestyle medicine within their disciplines and engage deans to underscore the importance of integrating lifestyle medicine training across curriculum.
- Create a Lifestyle Medicine Task Force (LMTF) to evaluate the initial design of the curriculum and to expand/implement LM components throughout the 4 years.

- **Step 2: Identification of the Core Overarching Program-Level Goal and Graduating Goals Related to Lifestyle Medicine**

- Identify the program-level goal, the graduating goals, and the learning objectives specific to each curricular year and name the knowledge and skills a learner needs to acquire to achieve the program goal by graduation.



USCSOM Greenville: Process of Inclusion

- **Step 3: Identification of the Lifestyle Medicine Core Curriculum Year-Specific Learning Objectives**
 - Create hierarchy of what the learners would specifically learn every year to demonstrate achievement of each of the 6 core graduating goals, including create a learning map, identify prerequisite knowledge, eliminate unnecessary skills and knowledge
- **Step 4: Design and Development of the Lifestyle Medicine Core Curriculum Educational Strategies**
 - Different domains of learning require appropriate teaching methodologies
 - Design a variety of teaching methods, including instructor-led teaching sessions within organ systems, problem-based learning with embedded LM; simulation with standardized patients; and clinical experience with LM embedded in clinical clerkship

¹Design and Implementation of a Lifestyle Medicine Curriculum in Undergraduate Medical Education. American Journal of Lifestyle Medicine.



USCSOM Greenville: Process of Inclusion

- **Step 5: Implement Lifestyle Medicine Core Curriculum**
 - Experiential opportunities included: Therapeutic Lifestyle Change program, live cooking sessions/demo, Lifestyle Medicine Special Interest Group, the Student Wellness Committee and the student-proposed organic garden, and physical activity–related charity events.
- **Step 6: Evaluation of the Lifestyle Medicine Core Curriculum**
 - Use students' feedback to evaluate and improve the curriculum.
 - Systematically collect and review assessment data to improve student learning outcomes.
 - Conduct curriculum mapping to ensure that lifestyle medicine training curriculum support the program-level goals and objectives.

¹Design and Implementation of a Lifestyle Medicine Curriculum in Undergraduate Medical Education. American Journal of Lifestyle Medicine.



Inclusion of LM at Northwestern

Northwestern University Feinberg School of Medicine ¹	Methodology of Inclusion	Key Elements	Outcomes	Challenges
<ul style="list-style-type: none"> Redesigned curriculum in 2012 to replace the 1993 curriculum. Four “threads” address recommendations in the 2010 Carnegie Foundation report on reforming medical education, including prepare physicians who are committed to excellence by cultivating habits of inquiry, innovation, and improvement. 	<ul style="list-style-type: none"> The lifestyle medicine thread introduces students to the sciences of nutrition, physical activity, and behavior change management. 	<ul style="list-style-type: none"> As part of the LM thread, students complete a personal behavior change plan, learning about the process and principles of behavior change while striving to improve their own health. 	<ul style="list-style-type: none"> Increased early electives or advanced clerkships. Increased focused on primary care. 	<ul style="list-style-type: none"> Does not allow for accelerated coursework. Improve integration of thread structure into the clerkship years. Potentially increased student workload with the earlier introduction of non-basic-science elements.

¹ Description and Early Outcomes of a Comprehensive Curriculum Redesign at the Northwestern University Feinberg School of Medicine. Academic Medicine.



NWFSM Inclusion

- Lifestyle medicine was designated as one of four essential threads and incorporates key practices that are associated with maintenance of health and prevention and treatment of disease.
 - Eight components were selected: nutrition, physical activity, smoking, substance use, sleep, stress, behavior change, and body weight.
 - Each component is incorporated horizontally and longitudinally throughout the curriculum and is strategically included in each of the 13 organ-based system modules over the first 2 years.
- During Phase 1, the eight components of the lifestyle medicine thread were identified 462 times within 268 session learning guides, of which 78 (29%) sessions addressed some aspect of diet and nutrition.
- Behavior Change Plan (BCP), a 6-week activity conducted during the Foundation module in which students have the opportunity to learn the process of making a selective behavior change, appreciate the challenges in implementing change, learn a skill that is useful in the clinical care of patients, and improve their own health.

¹ *Description and Early Outcomes of a Comprehensive Curriculum Redesign at the Northwestern University Feinberg School of Medicine. Academic Medicine.*

Other Leaders Including LM in UME

- **Loma Linda University Health:** Offers a 12-month lifestyle medicine fellowship, a family medicine residency, a preventive medicine residency, and a combined family/preventive medicine residency, all are involved in lifestyle medicine training that includes multiple community programs and outreach.
- **Western University of the Health Sciences College of Osteopathic Medicine of the Pacific:** Offers an elective longitudinal lifestyle medicine track across all years, learning best practices from clinicians who are currently incorporating lifestyle medicine in their clinical practices. Students are required to work on a capstone project to further grow their creativity and knowledge, giving them community-based lifestyle medicine experience.
- **Harvard School of Medicine:** Adopted structured nutrition education in their medical school curriculum and has begun to teach other aspects of lifestyle medicine as part of an optional student-led, faculty member advised, parallel curriculum.

Teaching Nutrition in the Context for Lifestyle Medicine. Med.Sci.Educ.



Other Leaders Including LM in UME

- **Medical College of Wisconsin:** A collaborative curriculum on obesity, supported by an Advancing Healthier Wisconsin grant, across three partnering clerkships (family medicine, general internal medicine and pediatrics) to advance the competence of medical students, coordination of clerkships to foster obesity education quality, and raise volunteer preceptors' knowledge and satisfaction with obesity teaching.
 - Early results showed that students possessed important information about associated comorbidities and increased communication approaches to address overweight and obesity.
- **The Warren Alpert Medical School of Brown University:** Instead of a separate 22-hour course, obesity/overweight/nutrition topics are incorporated throughout the curriculum. To oversee this integration, the Nutrition Theme Committee meets bi-annually to review implementation in the curriculum, clerkships, and clinical years.
- **University of Colorado School of Medicine:** The Cultural Competence and Diversity Thread (CCDT) is a four year curriculum, integrated into basic courses and clinical internships.



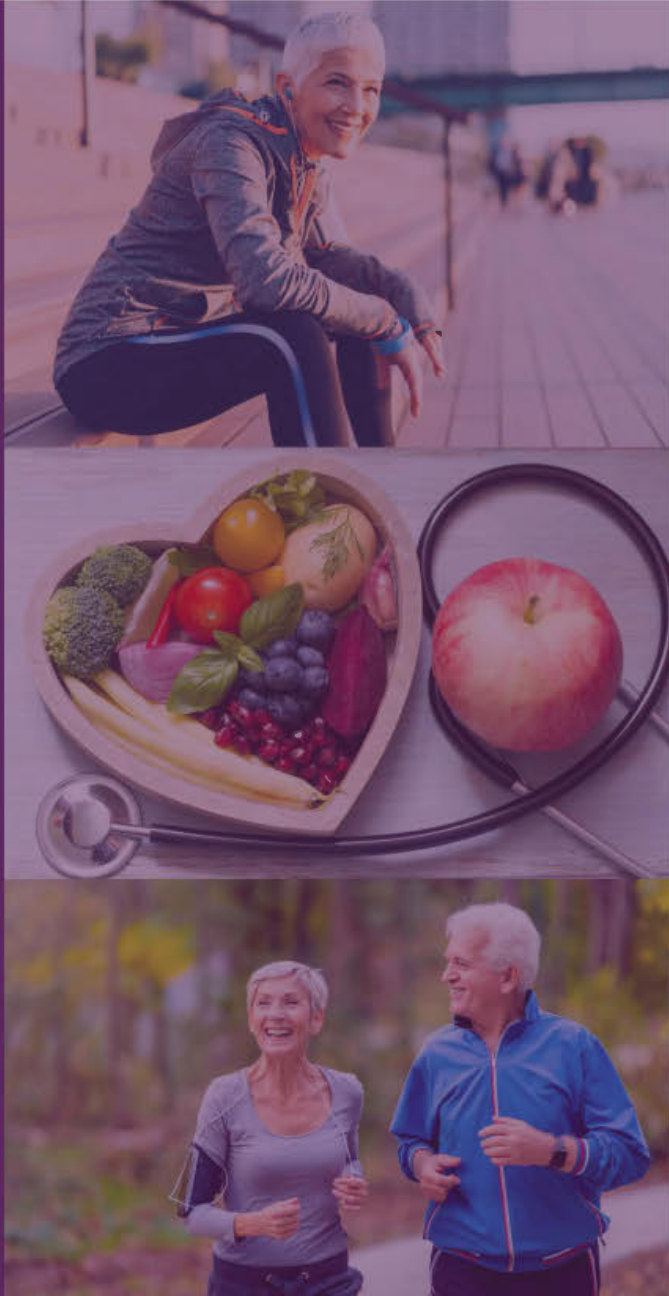
Other Leaders Including LM in UME

- **University of Nevada School of Medicine:** The nutrition education and research program was restructured in 2003 to become the Division of Medical Nutrition, Department of Internal Medicine with the support of the Nutrition Academic Award. The new model emphasizes integration within existing basic and clinical courses.
 - For example, nutrition content was added to basic and clinical problem sets during the first two years and to clinical case problems in year three. Students may also opt to receive a “Special Qualifications In Nutrition (SQIN)” by pursuing a four-year sequence of educational experiences.
 - An interdisciplinary team, including physicians, nutritionists/registered dietitians, exercise physiologists, and behavioral health specialists provide faculty to deliver clinical and educational training.
- **University of Pittsburgh School of Medicine:** Integrates obesity and nutrition as a longitudinal curricular theme to help address the obesity epidemic. Courses provide early exposure to the theory and practice of behavior change and apply their knowledge in their clerkship (*1/3 of third-year students spend a week on the Weight Management and Wellness Center at Children’s Hospital*).



Other Leaders Including LM in UME

- **University of Texas Medical School at Houston:** Incorporates information and skills relevant to the prevention and treatment of overweight and obesity throughout its curriculum, including an online module Nutrition in Preventive Medicine.
 - In the fourth year, a clinical nutrition elective is offered in the Department of Internal Medicine which focuses on prevention and treatment of obesity, diabetes, and cardiovascular disease with rotation in the Wellness Center and the Diabetes and Cardiovascular Outpatient Centers at Memorial Hermann Hospital.
- **University of Wisconsin School of Medicine and Public Health:** The curriculum was updated in 2005 with funds from the National Heart, Lung, and Blood Institute Nutrition Academic Award, to include obesity and obesity prevention through basic sciences courses and a clinical nutrition course.
- **City University of New York School of Medicine:** Created a 7-year BS/MD program that includes lifestyle medicine throughout their curriculum and promotes a healthy lifestyle on campus to students by having two fitness centers, physical activity programs, weekly mindfulness sessions, and healthy food options.





Other Leaders Including LM in UME

- **The University of Florida:** Implemented an “Exercise is Medicine” lecture series in their medical school curriculum.
- **Tulane School of Medicine:** As home of the Goldring Center for Culinary Medicine, which received the 2017 Health Innovators Award, Tulane includes cooking and nutrition education. Students can complete a community rotation at the culinary school.
- **The University of North Carolina:** Created an online Nutrition in Medicine curriculum, which is made available to both UNC students and other medical school students across the country.
- **University of Texas Rio Grande Valley:** Created a Community-Engaged lifestyle medicine training approach for the GPM/PH residency program in 2017. The residency program applies community engagement principles to promote behavior change and health equity by emphasizes community-clinic linkages, patient-centered care, cultural responsiveness, care coordination, intersectoral partnerships, and a multi-level approach. The Multi-level approaches involving the individual, peer/family group, healthcare team, neighborhood resources, and cultural context in clinical and lay settings reinforce healthy “default” contexts for behavior change in vulnerable groups.



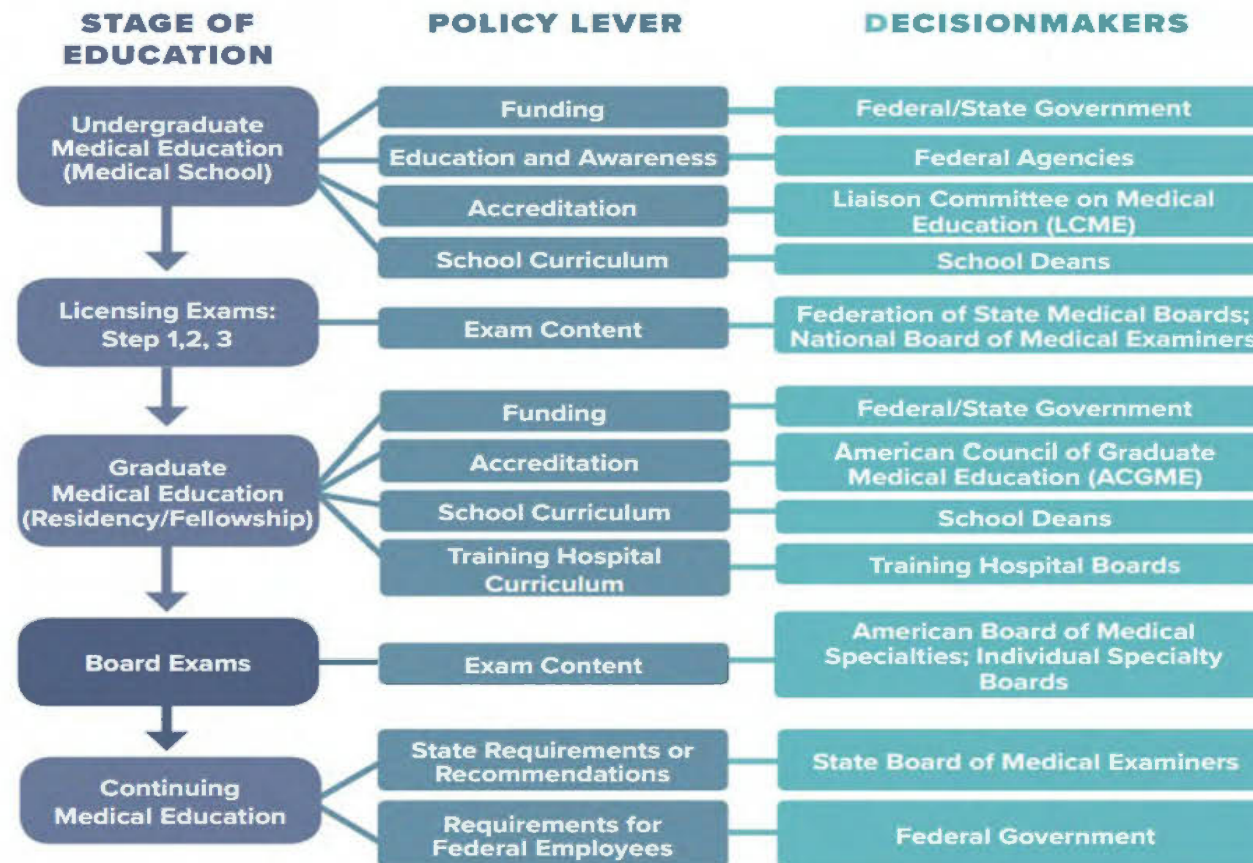
Barriers to Including LM into UME

1. Difficulties finding space for additional material in crowded curricula
2. Slow institutional changes to traditional curricula
3. Shortage of professors and practicing physicians who have adequate training and expertise to teach lifestyle medicine in UME, GME, and beyond
4. Lack of (or limited) board-certified subspecialty fellowships in nutrition and physical activity and other lifestyle medicine components
5. Lack of credentialing exam questions testing competency in Lifestyle Medicine
6. Medical schools lack funding and resources to implement the required change in curriculum
7. Structural biases in health care marketplace that undervalue preventive care
8. Health care systems resistance to implementing and supporting lifestyle medicine practice approaches (i.e. clinical setting, insurance, policy, funding, etc.)
9. Lack of incentives for medical students and professionals to place a focus on nutrition and physical activity
10. Perceived lack of evidence supporting effectiveness of lifestyle / behavior modifications



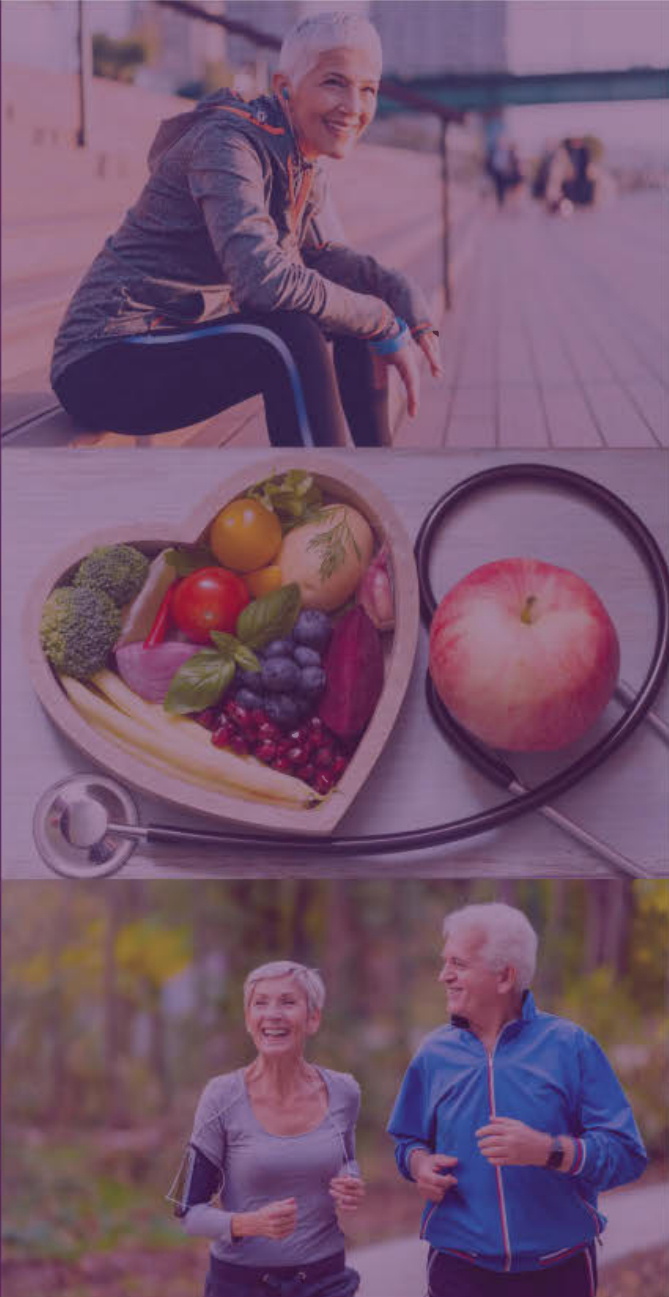
Inflection Points to Drive Integration

Although the following graphic was created by the Harvard Food Law and Policy Clinic to illustrate opportunities to implement nutrition education for physicians, the continuum of opportunities is relevant to the inclusion of lifestyle medicine components and the key policy levers and decision makers.



Source: Harvard Food Law and Policy Clinic





Recommendations for Inclusion

Medical Education:¹

- Faculty: Increase and broaden awareness of the need for changes in medical education.
- Curriculum: Expand board-accredited advanced training programs to create a cadre of experts in lifestyle medicine who can teach health professionals. Continue developing and implementing a standard lifestyle medicine curriculum.
 - Recognize and reward innovation to drive continued funding and administrative support for reform efforts that are already underway.
 - Extend improvements in nutrition and physical activity education to other health professional schools.
- Exam: Include more lifestyle medicine content in licensing and certification exams and requirements for residency and continuing education programs.

Reimbursement for health services that target lifestyle (e.g. nutrition & exercise).²

Legislature: Provide federal and state support for reforms in medical education and health care delivery that can help providers better meet patient needs with respect to nutrition, physical activity, and other lifestyle factors.³

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