

Proceedings of the Summit on Medical Education in Nutrition

Documenting Three Days
of Discussion

Chicago, Illinois | March 12-14, 2023

TABLE OF CONTENTS

| | |
|-----------|--|
| 03 | Executive Summary |
| 04 | Opening Remarks |
| 04 | Keynote Address |
| 06 | Panel Discussions |
| 08 | Common Threads and Key Insights |
| 10 | Small Group Work |
| 15 | Concluding Remarks |
| 16 | Appendix A: Planning Committee |
| 17 | Appendix B: Panels and Panelists |
| 18 | Appendix C: Research and Resources on Nutrition Recommended by Panelists and Participants |

Executive Summary

INTRODUCTION

In March 2023, the Accreditation Council for Graduate Medical Education (ACGME) hosted a Summit on Nutrition in Medical Education in collaboration with the Association of American Medical Colleges (AAMC) and the American Association of Colleges of Osteopathic Medicine (AACOM). The event brought together 100 medical education stakeholders at the ACGME's Chicago offices to focus on two areas: 1) what residents need to know about nutrition to develop the competence and confidence to counsel their patients with sensitivity to the relationship between their food history and their health; and, 2) how nutrition education in graduate medical education (GME) fits into the continuum of medical education, from undergraduate medical education (UME) through clinical practice and continuing medical education (CME). The Summit agenda was developed with insight from a Planning Committee composed of representatives from various professional organizations and leaders in nutrition medicine and education. (See Appendix A for a list of Planning Committee members.)

Summit attendance was in person, by invitation. Attendees included:

- ▶ Leaders of graduate medical education, including representatives from among residents, program directors, and designated institutional officials;
- ▶ Leaders involved in undergraduate medical education;
- ▶ Representatives of the CME community;
- ▶ Representatives of specialty societies and certifying boards;
- ▶ Physician experts in nutrition and teaching nutrition to medical students and residents; and,
- ▶ Registered nutritionists and dietitians.

The Summit featured a keynote address, a series of panel discussions by experts in nutrition education and competency-based medical education, and large and small group work. Through the latter activities, participants worked to codify key learnings and refine recommendations from the group to follow through in their various organizations and communities.

The Summit was inspired in part by ACGME engagement with the US House of Representatives' "Food Is Medicine" Caucus and participation in the White House Conference on Hunger, Nutrition, and Health held in September 2022, which set forth a transformational vision to end hunger and reduce diet-related disease in the US by 2030. As participants in the conference, the ACGME and AAMC committed to hosting this Summit on Medical Education in Nutrition.

Opening Remarks

ACGME Chief Communications and Public Policy Officer John R. Combes, MD; AACOM President and Chief Executive Officer Robert A. Cain, DO; and AAMC Chief Academic Officer Allison J. Whelan, MD, welcomed attendees. Dr. Combes outlined the goals of the Summit as stemming from the second pillar of the White House Conference, namely, to integrate nutrition and health in the context of teaching and learning. He recognized the leaders present from the AAMC and AACOM as key collaborators in realizing the Summit and provided an overview of the activities that would occur. He reminded participants that the ACGME's role is to develop requirements for learning based on what they, as educators and leaders in specialty domains and other areas of medical and professional education, identify as essential for learning. He suggested that it was the shared responsibility of all present to address deficiencies in education and training that contribute to the current health-related crisis and develop solutions for lack of integrated nutrition education across the continuum. He also noted that while the ACGME maintains a neutral position in federal policy it keeps apprised of developments that affect medical education. In its role as convener, the ACGME brought together the continuum of medical education to discuss nutrition.

Keynote Address

The Summit began with a keynote address by Dariush Mozaffarian, MD, DrPH (Jean Mayer Professor of Nutrition and Medicine and Dean of the Gerald J. and Dorothy R. Friedman School of Nutrition Science and Policy, Tufts University). Drawing upon his experience as a practicing cardiologist and medical educator, he walked attendees through the current state of food and nutrition policy in the United States using the lens of the September 2022 White House Conference on Hunger, Nutrition, and Health hosted by the Biden-Harris Administration. The goal of the White House conference was to develop a transformational vision for ending hunger and reducing diet-related disease in the US by 2030. Dr. Mozaffarian provided a foundation for participants to leverage opportunities to improve the health of the public by integrating nutrition in medical education and patient care.

THE HEALTH CRISIS AND NUTRITION SCIENCE

Citing data from authoritative scientific sources, public agencies, and private organizations, Dr. Mozaffarian built the case that food is the primary cause of poor health in the US. More adults are sick than healthy with diet-related diseases such as diabetes or pre-diabetes, cancer, and obesity. US health care is characterized by skyrocketing costs, with 80 percent of health care dollars spent on preventable chronic diseases; government spending on direct medical costs related to diabetes alone was \$160 billion in 2018. The COVID-19 pandemic exacerbated this crisis, with diet-related diseases as the top risk factors for worse outcomes for patients with COVID-19 and as major contributors to inequities in COVID-19 outcomes.

Although the public recognizes the seriousness of this national crisis, understanding what can be done to move toward positive change is often met with confusion and helplessness due to ineffective communication of the current science related to diet and chronic disease. Dr. Mozaffarian proposed four directions that should be taken by nutrition science development to address deficiencies in the food system and alleviate confusion regarding best practices and effective interventions:

- ▶ *A more holistic vision of healthy food, not nutrients alone, should be the focus of nutrition education. Food should be viewed as medicine. Nutrition science has discovered that we have an insufficient intake of protective foods—too few nuts, whole grains, fish, etc.*

- ▶ *The kind of food we eat changes the energy we burn.* Calories alone should not be the focus of combating obesity. Nutrition should focus on the physiology of our bodies, what we eat, and the quality of our diet.
- ▶ *Nutrition science should move beyond one or two surrogate endpoints.* Diet affects almost every single pathway in the body. If we pick only one, we will be led astray. The low-fat diet is an example. Obesity and unhealthy weight are not synonymous. We should think big picture.
- ▶ *Food processing matters.* While food processing is generally accepted as adverse, we still lack sufficient information to show how processing affects the body. Many foods advertised as low fat or low calorie are highly processed, making them less healthy than other options. At least one randomized trial showed that ultraprocessed food caused greater weight gain.

NUTRITION, RESEARCH, AND POLICY

Dr. Mozaffarian challenged the group to consider why, amidst rising health care expenditures in the US and proof that diet-related diseases appear to be the most prevalent cause of illness, the current science for nutrition has not effectively translated into policy and medical education. He suggested that the answer lies in the fact that our food system has continued to build itself around outdated strategies. This system has not adapted appropriately to respond to the rise in chronic disease at the center of the current national health care crisis.

As an example of an approach to address this issue, Dr. Mozaffarian referenced 30 “ambitious, actionable recommendations to end hunger, advance nutrition, and improve health in the US” included in the national strategy adopted by the Biden-Harris Administration based on the following pillars:

- ▶ Improve food access and affordability;
- ▶ Integrate nutrition and health;
- ▶ Empower all consumers to make and have access to healthy choices;
- ▶ Support physical activity for all; and,
- ▶ Enhance nutrition and food security research.

These pillars encompass government nutrition programs, public health and education, health care systems, science and research, business innovation, and national coordination. The collective efforts of these six domains have the potential to result in the type of systemic change necessary to address hunger in the US and reduce diet-related disease. For example, a systematic review of nutrition education in medicine by Crowley, Ball, and Hiddink identified the limited exposure to nutrition education in UME, the resulting absence of nutrition counseling in practice, and the desire for more education as critical needs recognized by medical students. (See Appendix C) Recognizing this gap, the White House Conference recommended that health professional schools and licensing boards should expand nutrition education in curricula, board exams, and post-graduate training across the continuum of medical education.

He urged participants to recognize their leadership role in effecting change in health care delivery to promote nutrition as a key component of the patient encounter through treatment, prevention, and nutrition counseling and education.

Dr. Mozaffarian summarized his presentation by reminding participants that the current health care crisis is costly, deadly, and preventable. Recent congressional action to support the goals identified by the Advisory Council and the transformational vision outlined in the Biden-Harris Administration’s strategy confirms that the nation is at a tipping point. He concluded by giving his strong support to the work of the Summit by sharing his belief that the commitment of physicians and nutrition specialists is an indispensable condition to achieving this vision.

Panel Discussions

Alison Whelan, MD (Chief Academic Officer, AAMC) and Robert Cain, DO (President and Chief Executive Officer, AACOM) began the second day of the Summit by welcoming participants on behalf of their organizations. During her remarks, Dr. Whelan encouraged attendees to remember that medical school graduates and residents and fellows will practice in diverse settings, which means that a “one size fits all” approach will not result in long-term success; rather, the focus should be on identifying what learners need to know and the best approaches to teaching those skills and competencies. Dr. Combes then introduced the panel discussions as a means to provide a common framework for understanding the current state of nutrition in the context of medical education. See Appendix B for a complete list of panels and panelists.

Panelists included leaders in medical education, research, nutrition, and dietetics who provided knowledge and commentary in their areas of expertise and from their personal experience. Panel topics included:

- ▶ Using a competency-based approach in GME;
- ▶ Identifying and teaching nutrition competencies in UME;
- ▶ Teaching the clinical experience of nutrition in GME;
- ▶ Integrating the cultural and structural aspects of nutrition in GME; and,
- ▶ Working with dietitians and nutritionists as part of the health care team.

Each panel discussion ended with a question and comment period and a written report produced by each table. Working together, participants listed common threads, key insights, and critical issues that emerged during each discussion. All table reports were subsequently transcribed and synthesized. Four general categories of major need emerged across all panels: education/curriculum; sustainability for the efforts to address nutrition; patient-centered care and medical student well-being; and the impact of culture and socioeconomic status on nutrition. The takeaways associated with each category in turn reflected participants’ perception of the goals to be met to effectively address each major need.

The following list includes the focus of each panel and the topics covered by the panelists. Research highlighted by panelists during their presentations and resources to which they referred can be found in Appendix C.

USING A COMPETENCY-BASED APPROACH IN GME

1. The ACGME and Accreditation Council for Education in Nutrition and Dietetics (ACEND) have implemented models for developing and sustaining competency-based education in their accredited programs.
2. Competency-based learning provides a framework for a wholistic approach to integrating nutrition education rather than simply adding it to the curriculum as a separate component.
3. Assessment drives learning.

IDENTIFYING AND TEACHING NUTRITION COMPETENCIES IN UME

1. More than 60 years of ongoing attempts to integrate nutrition into medical education have resulted in some successes but have not been sustained due primarily to the lack of funding.
2. Myths pertaining to UME include that nutrition isn't addressed in the curriculum, that fixing the UME curriculum alone will improve health care delivery and outcomes, and that medicine has changed over the past 100 years but medical education has not.
3. Case examples from Boston University Chobanian & Avedisian School of Medicine and Touro College of Osteopathic Medicine offer insight into the benefits and challenges associated with incorporating nutrition into the UME curriculum.
4. Teaching kitchens are an emerging learning tool in nutrition education that incorporates interprofessional collaboration among nutritionists, dietitians, practitioners, and learners across the medical education continuum and with local communities.

TEACHING THE CLINICAL EXPERIENCE OF NUTRITION IN GME

1. Through the integration of evidence-based, specialty-related information on nutrition and the relationship between diet and disease throughout education and training, physicians will avoid giving incomplete or inaccurate information during patient encounters.
2. Establishing a working relationship with nutrition professionals in team-based patient care settings will increase the effectiveness of nutrition counseling.
3. Tools exist to help teach physicians to perform a nutritional screening and have an evidence-based conversation about nutrition with their patients. One speaker demonstrated one such interactive tool, Nutri, which supports patient-provider dietary goal setting.

INTEGRATING THE CULTURAL AND STRUCTURAL ASPECTS OF NUTRITION IN GME

1. Food relates to the social determinants of health, including food insecurity, food culture, cultural competence, race, racism, and race stigma.
2. Effective nutrition counseling should consider patients' social, physical, and macro-level environments and history as well as how demographics influence their food choices.
3. Physicians and nutritionists should develop cultural humility to recognize the differences between their patients and themselves and how such differences may impact their own food choices and recommendations to patients. Physicians should also learn to recognize and eliminate bias and stigma related to diet, nutrition, weight, and food insecurity.

WORKING WITH DIETITIANS AND NUTRITIONISTS AS PART OF THE HEALTH CARE TEAM

1. Introducing the scope of training and practice of nutritionists and dietitians early in physicians' education and training will provide a basis for interprofessional collaboration related to nutrition during residency and throughout a physician's career.
2. Efforts to develop payment models for nutrition counseling require advocacy for patients by physicians and nutritionists alike.

Common Threads and Key Insights

Each panel segment concluded with a written report from each table; participants recorded common threads they drew from each presentation, key insights they considered helpful in addressing how to integrate nutrition education in GME, and critical issues they determined would require particular attention to achieve successful integration of nutrition in GME. Transcription and synthesis of these group reports identified the following categories common to all groups and the key takeaways associated with each category.

Education/Curriculum

- ▶ Knowledge about nutrition is relevant to each specialty and an important aspect of education and training.
- ▶ Nutrition education should be integrated within existing curricula rather than “adding on” to what is perceived as an already overburdened system.
- ▶ A holistic model for teaching and learning should be applied, as part of the biopsychosocial model for patient care.
- ▶ Needs include:
 - Shared goals for nutrition education and competencies;
 - Basic elements for curriculum planning and implementation;
 - Clarity within the body of nutrition knowledge that differentiates nutrition science from pseudoscience;
 - Agreed-upon terminology, e.g., food as medicine, culinary medicine, lifestyle medicine;
 - Models for learning that integrate nutrition basics into curricula for each educational level across the continuum of medical education and consider experiential models of learning;
 - Faculty development; and,
 - Data-based and realistic outcomes for assessment.
- ▶ Learners should understand the roles of all team members, especially registered dietitians (RDs) and registered dietitian nutritionists (RDNs), and recognize the potential role of and how to partner with community agencies and workers.
- ▶ Educational efforts should support patient and learner well-being.

Sustainability

- ▶ Sustainable programs are those reliant on steady funding streams rather than volunteerism.
- ▶ Funding is critical and can potentially be secured through:
 - Federal support, including from federal agencies such as the Health Resources and Services Administration (HRSA) and the National Institutes of Health (NIH);
 - Reimbursement support for RDs, RDNs, and paraprofessionals; and,
 - Reimbursement models that include cognitive and counseling services in addition to procedural encounters with patients.
- ▶ Needs related to sustainability include:
 - Nutrition further incorporated into accreditation standards, board examinations, and licensure regulations to ensure structural change; and,
 - A current clearinghouse of resources and successful models for nutrition education.

Patient-centered care and medical student/resident well-being

- ▶ Nutrition is a social determinant of health.
- ▶ Understanding the impact of food insecurity is an important aspect of nutrition education.
- ▶ Medical students and residents should be taught to include simple, validated screening tools as they identify and address food insecurities among patient populations.
- ▶ Faculty members should be sensitized to food insecurity among medical students and residents.
- ▶ Models are needed to incorporate nutrition counseling across all settings.

Impact of culture and socioeconomic status

- ▶ UME and GME should engage the community to build awareness of varying cultural and socioeconomic realities of the patient population.
- ▶ Cultural humility on the part of all learners is needed to recognize and accept patients' realities as different from their own.
- ▶ There needs to be recognition that food has complex meaning outside of health for some individuals.
- ▶ People are thoughtful experts in their own experience. Medical students and residents should be equipped with the tools to support patients in making positive change.
- ▶ There can be disparities related to food and nutrition between patients' experiences and those of medical students, residents, and practicing physicians.
- ▶ Medical students, residents, and practicing physicians should be mindful of the structural determinants of health and that the full impact of these factors cannot always be addressed within their immediate scope.
- ▶ Medical students and residents can learn about nutrition and increase awareness of community-based resources for food and nutrition through various tools and activities such as teaching kitchens, food-focused field trips, etc.

Small Group Work

Building on the framework provided by the panel discussions, attendees spent the majority of the Summit's third day engaged in small group activities. These activities guided attendees through several steps to refine their thinking on the competencies and skills needed in both UME and GME to effectively integrate nutrition education and the opportunities and barriers involved in doing so. Participants interviewed each other and then compiled responses to interview questions on flip charts. Attendees were then asked to consider the major challenges and opportunities presented by the Summit discussions. These activities were designed to move from summary learning to priorities to actions.

INTERVIEWS

Participants were given the opportunity to interview five other participants and were interviewed themselves using five key questions. Following the interviews, they returned to small groups, where each question each was assigned to two tables for further discussion. Collated responses were recorded on flip charts, summarized for the entire group, and left available for display. The questions and a synthesis of the tables' responses are presented in Figure 1.

FIGURE 1

| |
|---|
| What competencies (i.e., knowledge, skills, or attitudes) do medical students need to have in nutrition? |
| Medical students need to understand that nutrition is essential to health. Such knowledge should include an understanding of the relationships between health, diet, and disease based on the most current nutrition science. Teaching and experiential learning of communication skills as a competency should include the importance of cultural humility, self-awareness, and self-bias in patient encounters regarding nutrition. Students should be able to incorporate nutrition assessment into their patient encounters with a recognition of implicit biases, social determinants of health, and disparities in nutrition. They should develop a respect for nutrition professionals, understand their roles, and learn to collaborate with them as part of the care team. Students need to develop an ability to identify and critically appraise nutrition resources, recognizing and addressing misinformation, fads, and use of supplements. They should learn to integrate their understanding of nutrition and food into their own self-care. As experiential learning can help students gain a practical understanding of nutrition, medical schools should provide opportunities for students such as teaching kitchens, farmer's market and grocery store visits, home visits, etc. To ensure these competencies are taught within the context of nutrition, they should be added to the United States Medical Licensing Examination (USMLE). |
| What skills should residents be able to demonstrate related to nutrition? |
| Residents should learn how to apply evidence-based information about nutrition specific to their specialty and translate it correctly for patients during treatment with cultural sensitivity, humility, empathy, and a lack of bias. They need to acquire the ability to assess food history, screen for food insecurity, and conduct a physical examination for malnutrition. They should develop basic nutrition counseling skills, applying correct, unbiased, and evidence-based dietary guidelines for patients. They need to recognize their own limitations regarding providing nutrition counseling and know how to access the interprofessional teams available in their particular care setting and refer patients for specialized care. They should understand their own choices and how to incorporate their knowledge of nutrition into their busy lifestyles. Residents should learn about the resources available in the community to support their patients' food needs. |

What have you heard that's going right?

There is high-level, bipartisan national support for nutrition education and training and enthusiastic support by the organizations represented at the Summit. An increasing evidence base supports an understanding of food as a determinant of health and a recognition that the public, medical students, and residents want more. There is also growing recognition of the need to emphasize cultural and socioeconomic awareness of nutrition in patient encounters and to acknowledge patients as thoughtful experts in their own experience of food. Creativity among medical educators continues to provide innovative and diverse curricula in nutrition education that are available and can be adapted to various circumstances across the continuum of medical education. For example, teaching kitchens are an important experiential learning tool and can improve self-care among students and residents and change the culture of learning about nutrition overall. An emphasis on interprofessional collaboration will support respect for experience of nutrition professionals and community leaders who have the trust of patients.

What is the goal of nutrition education in UME, GME, and CME?

Goals include:

- ▶ Integrated, longitudinal, and interprofessional integration of nutrition knowledge and skills.
- ▶ Specialty-specific distribution by residents of safe, evidence-based information and clinical application within the team.
- ▶ For practicing physicians, the ability to course-correct with up-to-date foundational knowledge with a growth mindset.
- ▶ Receptivity to nutrition as central to physical health.
- ▶ Routine discussions of nutrition in all specialties.
- ▶ Refraining from judgment and practicing cultural humility.
- ▶ Reducing existing information into practical, usable information and reducing medical misinformation.
- ▶ Referring to appropriate roles and resources.
- ▶ Respecting aspects of different communities.
- ▶ Recognizing gaps, food insecurity, social determinants of health, and the history that created them.
- ▶ Relaxing with wellness and self-care.

What challenges or barriers to progress have you heard about?

An understanding of nutrition as central to physical health should be integrated longitudinally and interprofessionally into medical education. For physicians, this means integrating knowledge and skills in the pre-clinical and clinical years of UME. In residency, routine, evidence-based discussions of nutrition should occur in all specialties and should be applied consistently by clinical care teams. CME should support course correction with current foundational knowledge continually updated to reflect current nutrition science and best practices. In general, this knowledge at all levels should be practical and usable, aiming to reduce medical misinformation. In teaching and in practice, physicians should demonstrate respect for the assets of various communities by practicing cultural humility; recognizing food insecurity; acknowledging food as a social determinant of health; and to the degree necessary, learning the history that created a community's experience of food. All practitioners should themselves practice habits of wellness and self-care related to nutrition.

What opportunities do you see to incorporate what we've discussed today?

The time has come to identify core competencies that are clear, specific, and flexible for adoption in nutrition. These competencies should also include food literacy and the use of evidence-based medicine applied to an understanding of the relationship between food and prevention of chronic disease. These elements should also be added to board examinations, as well as recertification and licensure tests. Requirements, curricula, and assessments should be standardized.

Advocacy efforts should be directed to address barriers to changes in food/nutrition policy, especially for reimbursement and for funding greater use of technology and access to resources. Funding should also support efforts to leverage the enthusiasm of medical students and residents and to engage and support program directors, including the incorporation of experiential learning. Community involvement and accessing and sharing resources within the community should be encouraged. Consideration should be given to nutrition as a subspecialty.

BARRIERS AND OPPORTUNITIES

The last two small-group segments of the Summit focused more closely on barriers and opportunities, once again drawing from the common knowledge framework and the small group work recently completed. Small groups recorded responses to the following questions for each area.

1. Barriers:
 - a. What are the main barriers that need to be addressed for you or your colleagues to succeed?
 - b. What do you need to overcome that barrier?
 - c. What assumptions do we need to test?
2. Opportunities:
 - a. What opportunities do you see to incorporate what we've discussed today?
 - b. What needs immediate attention?
 - c. What will it take to create change?
 - d. What do I or my organization have the discretion and resources to do now?
 - e. What requires additional effort or resources?

Identified barriers and responses are shown in Figure 2. Identified opportunities and responses are shown in Figure 3.

FIGURE 2: BARRIERS

| Barrier | Needed to overcome barrier | Assumptions to be tested |
|--|---|---|
| Lack of funding <ul style="list-style-type: none"> ▶ Reimbursement for teaching and for practice (skewed toward procedures) ▶ Support for research ▶ Unfunded mandates – lack of funding for time ▶ Lack of incentives for care | <ul style="list-style-type: none"> ▶ More money ▶ Advocacy ▶ Models and examples of effects on educational outcomes ▶ Examples of payment models ▶ A business model based on readmission rates, mortality; prove benefit for investment for the entire workforce | <ul style="list-style-type: none"> ▶ “If we build it, they will come” ▶ Reimbursing nutrition will result in more nutrition education ▶ Money will make a difference |

| Barrier | Needed to overcome barrier | Assumptions to be tested |
|--|--|--|
| <p>Lack of respect for nutrition medicine</p> <ul style="list-style-type: none"> ▶ Lack of buy-in throughout medicine ▶ Not viewed as core knowledge/skills in the field ▶ Lacking body of evidence ▶ Disagreement on trustworthiness of the science ▶ Daunting breadth of topic ▶ Lack of unified and unbiased sources for nutrition information, and lack of agreement as to what those sources are ▶ Lack of knowledge regarding nutritional outcomes ▶ Self-care and healthy nutrition are not fully valued | <ul style="list-style-type: none"> ▶ Medicine built on a health rather than a disease model ▶ Clearinghouse of evidence-based medicine research ▶ Partnerships with professional societies | <ul style="list-style-type: none"> ▶ The physician is the appropriate caregiver to engage in nutrition counseling |
| <p>Failure of curricula to address nutrition</p> <ul style="list-style-type: none"> ▶ Limited time to teach another addition to the curriculum; competing demands ▶ Lack of educational assessment tools ▶ Lack of qualified faculty members ▶ Lack of trusted specialty-specific information | <ul style="list-style-type: none"> ▶ Encourage foundational education prior to medical school ▶ Create required curricula and electives ▶ Engage learners in developing curricula ▶ Share best practices for teaching with outcomes data ▶ Create opportunities for faculty members through CME ▶ Incorporate into USMLE, board examinations, accreditation standards ▶ Establish UME and GME continuum for education | <ul style="list-style-type: none"> ▶ Nutrition can be integrated into curricula rather than be an add-on ▶ Adding questions on licensing and certifying exams will improve learning ▶ Malnutrition is due to a knowledge gap that education can fill ▶ Political, regulatory, and food systems should change ▶ Positive impact should be framed on learning outcomes rather than patient outcomes |
| <p>Failure to give appropriate status/recognition to nutrition departments in medical schools and institutions</p> <ul style="list-style-type: none"> ▶ Nutrition department not typically part of or affiliated with medical schools ▶ Failure to take nutrition seriously | <ul style="list-style-type: none"> ▶ Models, examples, and data showing effects of educational interventions on health outcomes ▶ Leaders should understand the value ▶ Role modeling at the faculty level ▶ Acceptance in general | <ul style="list-style-type: none"> ▶ “If we build it, they will come” ▶ Reimbursing nutrition will result in more nutrition education |

FIGURE 3: OPPORTUNITIES

| | |
|--|--|
| <p>What opportunities do you see to incorporate what we've discussed today?</p> | <ul style="list-style-type: none"> ▶ <i>Improve sustainability</i> by bringing payors, accrediting organizations, and certifying boards to the table; engaging in contract negotiations (both public and private); engaging in cross-organizational learning by sharing examples, activities showing progress, and success stories; and linking education outcomes to patient outcomes ▶ <i>Agree on priorities in curricula</i> by creating competencies in UME as a foundation for all specialties and basic science courses based on nutrition science with collaboration among the ACGME, AAMC, and AACOM; agreeing on what information a primary care physician needs to know; including questions on USMLE, certifying board, and licensing exams with assistance provided to write questions; and incorporating nutrition educator metrics into individual program accreditation ▶ <i>Create a clearinghouse for research and resources</i>, screen for evidence-based nutrition science |
| <p>What needs immediate attention?</p> | <ul style="list-style-type: none"> ▶ <i>Level the playing field for foundational knowledge/competencies</i> across the medical education continuum ▶ <i>Begin mapping nutrition</i> into existing competency and assessment framework in GME by specialty ▶ <i>Expand licensure</i> to include CME in nutrition ▶ <i>Issue a public statement</i> to reflect the common understanding that steps have been made; participants can share messages from the Summit with their local administrators at relevant levels of support for nutrition education ▶ <i>Call on policy and legislative leaders</i> to institute payment/reimbursement that supports cultural education |
| <p>What will it take to create change?</p> | <ul style="list-style-type: none"> ▶ <i>Commitment</i>; a sustained effort; an original approach with short- and long-term plans; the ability to monitor progress to show the impact and consequent change in culture ▶ <i>Agreement on a rationally aligned set of competencies</i> with an emphasis on food ▶ <i>Awards program</i> for high-performing institutions funded by commercial stakeholders and philanthropy ▶ <i>Advocacy</i> for systems change, especially in reimbursement; federal action ▶ <i>Process outcomes, milestones, and accountability</i>; shared examples of what is working now; local efforts, e.g., monthly Graduate Medical Education Committee (GMEC) meetings ▶ <i>Physician buy-in</i>; champions; resources, including access to nutritionists and paraprofessionals ▶ <i>Changes in licensure</i> |

| | |
|---|--|
| <p>What do I or my organization have the discretion and resources to do now?</p> | <ul style="list-style-type: none"> ▶ <i>Advocate for new models</i> at home, e.g., culinary medicine in professional organizations ▶ <i>Take inventory of what exists now</i>; simulations and role play; investigate resources already available through professional organizations ▶ <i>Interact with nutritionist teams locally</i> to refer patients; clarify their role in discharge planning to readmission; learn what medical students and residents need to know ▶ <i>Apply for HRSA teaching health grants</i> ▶ <i>Engage in local activities to support food access</i>, e.g., subsidize food in cafeteria for availability of better food options; partner with food pantries for patient access to food |
| <p>What requires additional effort or resources?</p> | <ul style="list-style-type: none"> ▶ Linking learning outcomes to patient outcomes ▶ Commitment from all specialties and professional organizations ▶ Involvement of hospital partners and industry ▶ Pilot programs requiring funding and research ▶ Advocacy |

Concluding Remarks

Dr. Combes closed the Summit with thanks on behalf of the ACGME, AAMC, AACOM, and the Planning Committee for attendees' thoughtful and enthusiastic participation. He asked them to consider what actions they could take within their individual or organizational spheres of influence to lead the changes required to ensure that nutrition occupies space within UME, GME, and CME. Dr. Combes asked attendees to document one specific action to which they would commit over the following six months. He committed to returning the commitment cards to each attendee as a reminder of the action they pledged to take. He announced that proceedings of the Summit would be available to document the days' work and guide future action.

APPENDIX A:

PLANNING COMMITTEE, SUMMIT ON MEDICAL EDUCATION IN NUTRITION

Emily Broad Leib, JD

Professor of Law and Director, Food Law and Policy Clinic, Center for Health Law and Policy Innovation
Harvard Medical School

John R. Combes, MD

Chief Communications and Public Policy Officer
ACGME

Kathrin (Katie) Eliot, PhD

Associate Professor, Department of Nutritional Sciences, College of Allied Sciences
University of Oklahoma

Eric Holmboe, MD, MACP, FRCP

Chief Research, Milestone Development, and Evaluation Officer
ACGME

Lisa Howley, PhD

Senior Director to Transform Medical Education
AAMC

Emily Poole Pharr, MD

Program Director, Neurology
Wake Forest School of Medicine

Lynne M. Kirk, MD, MACP

Chief Accreditation Officer
ACGME

Greg Ogrinc, MD

Senior Vice President, Certification Standards and Programs
American Board of Medical Specialties

David S. Seres, MD

Director of Medical Nutrition and Professor of Medicine, Institute of Human Nutrition
Columbia University Medical Center

Mark Speicher, PhD

Senior Vice President, Medical Education and Research
AACOM

APPENDIX B:

PANELS AND PANELISTS, SUMMIT ON MEDICAL EDUCATION IN NUTRITION

GME Using a Competency-Based Approach

Moderator: Eric Holmboe, MD, Chief Research, Milestone Development, and Evaluation Officer, ACGME

Laura Edgar, EdD, CAE, Vice President, Milestone Development, ACGME

Katie Eliot, PhD, RD, Associate Professor, Department of Nutritional Sciences, College of Allied Sciences, University of Oklahoma

Identifying and Teaching Nutrition Competencies in UME

Moderator: Lisa Howley, PhD, Senior Director to Transform Medical Education, AAMC

Mark Speicher, PhD, Senior Vice President for Medical Education and Research, AACOM

Carine Lenders, MD, Associate Professor, Department of Pediatrics, Gastroenterology, Boston University, Chobanian & Avedisian School of Medicine

David Eisenberg, MD, Director of Culinary Nutrition and Adjunct Associate Professor of Nutrition, Harvard T.H. Chan School of Public Health

Grace Marie Jones, PhD, Associate Professor, Department of Basic Sciences, Touro College of Osteopathic Medicine

Identifying and Teaching Nutrition Competencies in GME

Part I: Teaching the Clinical Experience of Nutrition

Moderator: David Seres, MD, Director of Medical Nutrition and Professor of Medicine, Institute of Human Nutrition, Columbia University Medical Center

Jaclyn Albin, MD, Associate Professor, Departments of Internal Medicine and Pediatrics, University of Texas Southwestern Medical Center

Anita Ganti, MD, Clinical Instructor of Medicine, Department of Medicine, Division of General Internal Medicine, VA Pittsburgh Healthcare System, University of Pittsburgh School of Medicine

Marissa Burgermaster, PhD, Associate Professor, Department of Population Health, the University of Texas at Austin, Dell Medical School

Part II: The Cultural and Structural Aspects of Nutrition

Moderator: Emily Broad Leib, JD, Clinical Professor of Law and Director, Food Law and Policy Clinic for Health Law and Policy Innovation, Harvard Law School

Kofi Essel, MD, Associate Professor of Pediatrics, George Washington School of Medicine and Health Sciences

Angela Odoms-Young, PhD, Assistant Professor, Division of Nutritional Sciences, College of Human Ecology, Cornell University

Working with Dietitians and Nutritionists as Part of the Health Care Team

Moderator: Katie Eliot, PhD, RD, Associate Professor, Department of Nutritional Sciences, College of Allied Sciences, University of Oklahoma

Kathryn M. Kolasa, PhD, RDN, LDN, Professor Emeritus, Brody School of Medicine, East Carolina University

David Seres, MD, Director of Medical Nutrition and Professor of Medicine, Institute of Human Nutrition, Columbia University Medical Center

Dina Shaper, DO, Associate Professor, Department of Clinical Science, Family Medicine, West Virginia School of Osteopathic Medicine

Appendix C:

RESEARCH AND RESOURCES ON NUTRITION RECOMMENDED BY PANELISTS AND PARTICIPANTS

Nutrition Science/Policy

References

Mozaffarian, Dariush, Irwin Rosenberg, and Ricardo Uauy. 2018. "History of Modern Nutrition Science—Implications for Current Research, Dietary Guidelines, and Food Policy." *BMJ Clinical Research* 361: k2392. doi: <https://doi.org/10.1136/bmj.k2392>.

Resources

Food Is Medicine: How US Policy Is Shifting toward Nutrition for Better Health. 2019.

Drs. Dariush Mozaffarian, Jerold Mande, and Renata Micha of the Friedman School of Nutrition Science and Policy, Tufts University, explain that the time is at hand for meaningful policy action by US Congress that will leverage food as medicine. They outline the history of policy actions by Congress and make recommendations for federal government strategies that will make healthy eating easier for all Americans.

50th Anniversary of the White House Conference on Food, Nutrition, and Health. Federal Nutrition Policy Advisory Group. 2022.

Fifty years after the first White House Conference, on Food, Nutrition, and Health, Tufts University and Harvard University co-hosted a celebration of the 1969 conference's achievements. Echoing the first conference, the event brought together diverse stakeholders from academia; local, state, and federal government; the media; business; consumer organizations; health care representatives; agricultural and trade organizations; and social action groups to highlight the actions and successes from the first conference and, crucially, the new health, equity, economic, and sustainability burdens of food and nutrition in the US.

Biden-Harris Administration National Strategy on Hunger, Nutrition, and Health. September 2022.

The report introduces the national strategy to achieve a stronger, healthier nation by ending hunger in the US and increasing healthy eating and physical activity by 2030 so fewer Americans experience diet-related diseases. The strategy and its recommendations were the topic of the White House Conference on Hunger, Nutrition, and Health convened in Washington, DC in September 2022.

Federal Nutrition Policy Advisory Group.

The website for this national organization includes content by thought leaders from diverse backgrounds who are volunteering their knowledge and expertise to help consider and develop a strategy toward a new, robust, coordinated federal nutrition research effort. The group convenes regularly for discussions and to publish commentary on issues relevant to such an effort, bringing evidence, objectivity, and actionable policy recommendations.

Future Education Model Standards and Templates. American Academy of Nutrition and Dietetics. 2022.

This website provides background and information on the competency standards for accredited programs preparing students for careers as registered dietitian nutritionists or nutrition and dietetics technicians, registered.

Informing the White House Conference: Ambitious, Actionable Recommendations to End Hunger, Advance Nutrition, and Improve Health in the United States.

This report, authored by the Task Force on Hunger, Nutrition, and Health—a nongovernment, nonpartisan group of subject matter experts and multi-sector leaders—sets forth a series of policy recommendations and actions to advance the 2022 White House Conference goals of ending hunger, improving nutrition, and reducing diet-related diseases in the US. The report proposes a far-reaching, consensus-based strategy that reflects a diverse set of perspectives from leaders from academia, civil society, government, and the private sector.

Lifestyle Medicine Education.

This website offers open access to a collection of evidence-based curricular resources to educate and train future clinicians in prevention and treatment of lifestyle-related diseases. Lifestyle Medical Education is an evolution from the Lifestyle Medicine Education Collaborative now supported by the University of South Carolina School of Medicine at Greenville. The lifestyle medicine collection can be used for core curricula, integration into existing curricula, electives, rotations, and scholarly concentrations.

Education/Curriculum

References

- Cardenas, Diana, Gustavo Díaz, Vanessa Fuchs-Tarlovsky, Maria Cristina Gonzalez, Fernando Carrasco, Angélica María Pérez Cano, Charles Bermúdez, et al. 2021. "Nutrition Competencies for Undergraduate Medical Education: Results of an International Interdisciplinary Consensus." *Journal of Parenteral and Enteral Nutrition* 46 (3): 635–645. doi.org/10.1002/jpen.2203. <https://aspenjournals.onlinelibrary.wiley.com/doi/10.1002/jpen.2203>
- Crowley, Jennifer, Lauren Ball, and Gerrit Jan Hiddink. 2019. "Nutrition in Medical Education: A Systematic Review." *Lancet Planet Health* 3 (9): e379–e389. doi: 10.1016/S2542-5196(19)30171-8. <https://www.thelancet.com/journals/lanplh/article/PIIS2542-51961930171-8/fulltext>
- Frank, Jason R., Linda S. Snell, Olle Ten Cate, Eric S. Holmboe, Carol Carraccio, Susan R. Swing, Peter Harris, et al. 2010. "Competency-Based Medical Education: Theory to Practice." *Med Teach* 32 (8): 638–645. doi: 10.3109/0142159X.2010.501190. <https://pubmed.ncbi.nlm.nih.gov/20662574/>
- Kris-Etherton, Penny M., Sharon R. Akabas, Connie W. Bales, Bruce Bistran, Lynne Braun, Marilyn S. Edwards, Celia Laur, et al. 2014. "The Need to Advance Nutrition Education in the Training of Health Care Professionals and Recommended Research to Evaluate Implementation and Effectiveness." *Am J Clin Nutr* 99(suppl): 1153S–1166S. doi: 10.3945/ajcn.113.073502. <https://pubmed.ncbi.nlm.nih.gov/24717343/>
- Kushner, Robert F., Linda Van Horn, Cheryl L. Rock, Marilyn S. Edwards, Connie W. Bales, Martin Kohlmeier, and Sharon R. Akabas. 2014. "Nutrition Education in Medical School: A Time of Opportunity." *Am J Clin Nutr* 99(5 Suppl): 1167S–73S. doi: 10.3945/ajcn.113.073510. <https://pubmed.ncbi.nlm.nih.gov/24646826/>
- Lenders, Carine M., Megan V. Alexander, Sarah Gurney, and Kate Donovan. 2021. "Nutrition Related Learning Objectives and Entrustable Professional Activities in the Continuum of Medical Education and Training: Boston University Communities' Experiences." *EC Nutrition* 16 (3).
- Lenders, Carine M., Darwin D. Deen, Bruce Bistran, Marilyn S. Edwards, Douglas L. Seidner, M. Molly McMahon, Martin Kohlmeier, and Nancy F. Krebs. 2014. "Residency and Specialties Training in Nutrition: A Call for Action." *Am J Clin Nutr* 99 (suppl): 1174S–1183S. doi: 10.3945/ajcn.113.073528. <https://pubmed.ncbi.nlm.nih.gov/24646816/>
- Lenders, Carine, Kathy Gorman, Hannah Milch, Ashley Decker, Nanette Harvey, Lorraine Stanfield, Aimee Lim-Miller, Joan Salge-Blake, Laura Judd, and Sharon Levine. 2013. "A Novel Nutrition Medicine Education Model: The Boston University Experience." *Adv Nutr* 4: 1–7. doi: 10.3945/an.112.002766. <https://pubmed.ncbi.nlm.nih.gov/23319117/>
- Lenders, Carine M., and Gwen B. Twillman. 2019. "Update on Nutrition, Metabolism, and Lifestyle Curricula for Medical Education, Research, and Practice: USA." *Nestle Nutr Inst Workshop Ser* 92: 151–160. doi: 10.1159/000499558. <https://pubmed.ncbi.nlm.nih.gov/31779010/>
- Schoettler, Cynthia, Jennifer N. Lee, Kathy A. Ireland, and Carine M. Lenders. 2015. "A Novel Method of Increasing Medical Student Nutrition Awareness and Education." *J Biomed Ed*. 2015: 8. doi: 10.1155/2015/784042. <https://www.hindawi.com/journals/jbe/2015/784042/>

ten Cate, Olle. 2013. "Nuts and Bolts of Entrustable Professional Activities." *J Grad Med Educ* 5 (1): 157-158. doi: 10.4300/JGME-D-12-00380.1.

<https://meridian.allenpress.com/jgme/article/5/1/157/200514/Nuts-and-Bolts-of-Entrustable-Professional>

Van Horn, Linda, Carine M. Lenders, Charlotte A. Pratt, Bettina Beech, Patricia A. Carney, William Dietz, Rose DiMaria-Ghalili, et al. 2019. "Advancing Nutrition Education, Training, and Research for Medical Students, Residents, Fellows, Attending Physicians, and Other Clinicians: Building Competencies and Interdisciplinary Coordination." *Adv Nutr* 10 (6): 1181-1200. doi: 10.1093/advances/nmz083. <https://pubmed.ncbi.nlm.nih.gov/31728505/>

Resources

Milestones Guidebook (ACGME)

This guidebook provides background information on competency-based medical education (CBME) and the development of the ACGME Milestones, practical guidance on using the Milestones, and information about additional assessment and CBME resources.

MedEd Nutrition Education for Medical Schools and Residency Programs (Gaples Institute)

This nutrition course for health professionals is a condensed and actionable nutrition learning program that includes content on social determinants of nutrition inequities, screening for food insecurities, and steps physicians can take if patients screen positive. The course also features content on nutrition for physician self-care and resilience, and immersive clinical scenarios build learner competence in motivational interviewing and patient-counseling strategies. It is updated annually. This resource is available for a fee.

Lifestyle Medicine Education

This open access to a collection of evidence-based curricular resources supports the training of future clinicians in prevention and treatment of lifestyle-related diseases. This collection can be used for core curricula, integration into existing curricula, electives, rotations, and scholarly concentrations.

Provider Competencies for the Prevention and Management of Obesity. Stop Obesity Alliance. 2017.

These competencies were designed by more than 20 leading health organizations representing a dozen health professions. They are aimed at many types of health professionals engaged in obesity prevention and management. Collectively, the competencies establish a working knowledge of obesity, and are therefore best used together. Recognizing that the depth of knowledge or skill for a given competency will vary based on specialty, each specialty is encouraged to adapt these competencies to fit its needs.

Teaching Kitchens References

Eisenberg, David M., Allison C. Righter, Benjamin Matthews, Weimin Zhang, Walter C. Willett, and Jennifer Massa. 2017. "Feasibility Pilot Study of a Teaching Kitchen and Self-Care Curriculum in a Workplace Setting." *Am J Lifestyle Med*. May 23; 319-330. doi: 10.1177/1559827617709757. <https://journals.sagepub.com/doi/10.1177/1559827617709757>

Monlezun, Dominique J., Pedro Urday, Prerana Baranwal, William M. Lister, Alice Williamson, Sonia Malhotra, Leah Sarris, and Timothy S. Harlan. 2014. "Cooking up Better Doctors as Teachers Globally: A Novel Integrated Nutrition and Cooking Class Curriculum for Pediatric Residents to Boost Their Competencies and Attitudes in Patient Counseling." *Journal of Medicine and the Person* 13 (2): 125-128. doi: 10.1007/s12682-014-0199-9. <https://link.springer.com/article/10.1007/s12682-014-0199-9>

Razavi, Alexander C., Anna Latoff, Amber Dyer, Jaclyn Lewis Albin, Kristi Artz, Alexandra Babcock, Francesca Cimino, et al. 2023. "Virtual Teaching Kitchen Classes and Cardiovascular Disease Prevention Counselling among Medical Trainees." *BMJ Nutrition, Prevention & Health* 6. doi: 10.1136/bmjnph-2022-000477. <https://nutrition.bmj.com/content/early/2023/02/07/bmjnph-2022-000477>

Stauber, Zachary, Alexander C. Razavi, Leah Sarris, Timothy S. Harlan, and Dominique J. Monlezun. 2019. "Multisite Medical Student-Led Community Culinary Medicine Classes Improve Patients' Diets: Machine Learning-Augmented Propensity Score-Adjusted Fixed Effects Cohort Analysis of 1381 Subjects." *Am J Lifestyle Med* 16 (2): 214-220. doi:10.1177/1559827619893602. <https://journals.sagepub.com/doi/10.1177/1559827619893602>

Resources

A Culinary Medicine Workshop for Family Medicine Residents and Culinary Arts Students. Smith, Brittany, Ricky Watson, and Carolyn Kusbit.

This workshop was offered to ECU Family Medicine residents to improve nutrition counseling with patients. The workshop focused on the Mediterranean diet and its health benefits.

Pediatric Healthy Weight Research and Treatment Center: Handouts/Materials. East Carolina University Physicians.

Teaching Kitchen Collaborative.

This website provides background about the collaborative, its membership, research related to the emerging field, and resources and events, including a "how to" webinar series, toolkits, and events.

Patient-Centered Care and Medical Student/Resident Well-Being

References

Barkmeijer, Alyanne, Hedwig Te Molder, Mariam Janssen, and Harriët Jager-Wittenaar. 2022. "Towards Effective Dietary Counseling: A Scoping Review." *Patient Educ Couns* 105 (7): 1801-1817. doi: 10.1016/j.pec.2021.12.011. <https://pubmed.ncbi.nlm.nih.gov/34953620/>

Flynn, Mary M., Kristina Monteiro, Paul George, and Allan R. Tunkel. 2020. "Assessing Food Insecurity in Medical Students." *Fam Med* 52 (7): 512-513. doi: 10.22454/FamMed.2020.722238. <https://journals.stfm.org/familymedicine/2020/july-august/flynn-2020-0004/>

Frank, Erica. 2004. "Physician Health and Patient Care." *Student JAMA* 291 (5): 637. doi: 10.1001.jama.291.5.637. <https://jamanetwork.com/journals/jama/article-abstract/198135>

Riddle, Emilie S., Meredith T. Niles, and Amy Nickerson. 2020. "Prevalence and Factors Associated with Food Insecurity across an Entire Campus Population." *PLOS ONE* 15 (8). doi:10.1371/journal.pone.0237637. <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0237637>

Satter, Ellyn. 2007. "Eating Competence: Nutrition Education with the Satter Eating Competence Model." *Journal of Nutrition Education and Behavior* 39 (5) (suppl) doi: <https://doi.org/10.1016/j.jneb.2007.04.177>.

Thorman, Alyssa, and Harneet Kaur Dhillon. 2020. "The Prevalence of Food Insecurity among University of Utah Medical Students: Documenting the Need for Supportive Programs." *J Clin Transl Sci* (4) (Suppl 1). doi: 10.1017/cts.2020.282. <https://www.cambridge.org/core/journals/journal-of-clinical-and-translational-science/article/4437-the-prevalence-of-food-insecurity-among-university-of-utah-medical-students-documenting-the-need-for-supportive-programs/340896F5E46E71604F542C01BF94372F>

Zhou Amanda G., Michael R. Mercier, Colleen Chan, June Criscione, Nancy Angoff, and Laura R. Ment. 2021. "Food Insecurity in Medical Students: Preliminary Data from Yale School of Medicine." *Acad Med* 96 (6): 774-776. doi: 10.1097/ACM.0000000000004048. https://journals.lww.com/academicmedicine/Fulltext/2021/06000/Food_Insecurity_in_Medical_Students__Preliminary.6.aspx

Resources

Free Resources for Clinicians and Champions of First Foods. *Partnership for a Healthier America.* (English and Spanish)

Partnership for a Healthier America, the Dr. Yum Project, and a multidisciplinary team of child experts provide free patient education handouts for clinicians with stage-by-stage anticipatory guidance on feeding development during pregnancy and from 0-15 months. These guides include proactive tips and practical activities to boost feeding development and build health habits at every stage of a child's feeding journey.

Food Insecurity Screening Toolkit. *Feeding America and Humana Health.* 2022.

Humana and Feeding America partnered to develop this toolkit to raise awareness and offer suggestions for how health care and non-health care professionals might treat food insecurity in individuals. The resource is intended to support practitioners as they identify individuals who are food insecure and to make connections with community resources to help individuals improve their access to healthy food, their diet quality, and ultimately, their health

Lifestyle Medicine and Food as Medicine Essentials Course Bundle. *American College of Lifestyle Medicine.*

Chronic diseases are the leading cause of death and disability in the US. Recently highlighted by the White House Conference on Hunger, Nutrition, and Health, these free continuing medical education courses show how better nutrition leads to improved patient outcomes. This course bundle is available for a fee.

The Plantrician Project: Planting the Seeds of Change. *Plantrician University.* 2022.

This website is a free, virtual, plant-based nutrition education portal for health profession students to provide the knowledge and tools they need to be advocates and educators for the evidence-based role of plant-based nutrition to prevent and dramatically reduce rates of chronic disease, grow health equity, and improve human and global health.

Impact of Culture and Socioeconomic Status References

Alaimo, Katherine. 2005. "Food Insecurity in the United States." *Topics in Clinical Nutrition* 20 (4). doi: 10.1097/00008486-200510000-00002. https://journals.lww.com/topicsinclinicalnutrition/abstract/2005/10000/food_insecurity_in_the_united_states__an_overview.2.aspx

Alderwick, Hugh, and Laura M. Gottlieb. 2019. "Meanings and Misunderstandings: A Social Determinants of Health Lexicon for Health Care Systems." *Milbank Q* 97 (2): 407-419. doi: 10.1111/1468-0009.12390. <https://pubmed.ncbi.nlm.nih.gov/31069864/>

Essel, Kofi, and Kelly A. Courts. 2018. "Epidemiology and pathophysiology of food insecurity." In *Identifying and Addressing Childhood Food Insecurity in Healthcare and Community Settings*, edited by Hans B. Kersten, Andrew F. Beck, and Melissa Klein, 1-21. Springer.

Essel, Kofi, Baraka D. Floyd, and Melissa Klein. 2018. "Impacting Food Insecurity through the Use of Screening Tools and Training." In *Identifying and Addressing Childhood Food Insecurity in Healthcare and Community Settings*, edited by Hans B. Kersten, Andrew F. Beck, and Melissa Klein, 23-41. Springer.

Green, Katie, and Megan Zook. 2019. "When Talking about Social Determinants, Precision Matters." *Health Affairs Forefront*. doi: 10.1377/forefront.20191025.776011. <https://www.healthaffairs.org/content/forefront/talking-social-determinants-precision-matters>

Neff, Joshua, Seth M. Holmes, Kelly R. Knight, Shirley Strong, Ariana Thompson-Lastad, Cara McGuinness, Laura Duncan, et al. 2020. "Structural Competency: Curriculum for Medical Students, Residents, and Interprofessional Teams on the Structural Factors that Produce Health Disparities." *MedEdPORTAL* 16 (10888). doi: 15766/mep_2374-8265.10888. https://www.mededportal.org/doi/10.15766/mep_2374-8265.10888

Nord, Mark. 2013. "Youth Are Less Likely to Be Food Insecure than Adults in the Same Household." *Journal of Hunger and Environmental Nutrition* 8 (2). doi: 10.1080/19320248.2013.786667. <https://www.tandfonline.com/doi/abs/10.1080/19320248.2013.786667>

Story, Mary, Karen M. Kaphingst, Ramona Robinson-O'Brien, and Karen Glanz. 2008. "Creating Healthy Food and Eating Environments: Policy and Environmental Approaches." *Annual Rev Public Health* 29: 253-272. doi: 10/1146/annurev.publhealth.29.020907.090926. <https://www.annualreviews.org/doi/abs/10.1146/annurev.publhealth.29.020907.090926>

Resources

A Conceptual Framework for Action on the Social Determinants of Health. World Health Organization. Paper 2. 2010.

This report from the World Health Organization discusses a conceptual framework for science and policy for health equity by conceptualizing the health system itself as a social determinant of health. The role of the health system is relevant through the issue of access and plays an important role in mediating the differential consequences of illness in people's lives. The report identifies three broad approaches to reducing health inequities through a policy framework.

Nutrition Consult. Craven, Kay, and Kathryn Kolasa.

The MOTHeRS' Project is a collaborative care model that includes the patient, nurse navigator, diabetes educator, behavioral health manager, primary obstetrician, MFM specialist, and a psychiatrist consultant, that brings support and insights of specialty physicians to identified practices. This video illustrates two questions validated for use in the clinical setting to identify food insecurity. Additional resources from the MOTHeRS' Project, including a grocery shopping guide for women who are pregnant, can be found on TheScholarSHIP.



Accreditation Council for
Graduate Medical Education



Tomorrow's Doctors, Tomorrow's Cures®