

Academy Research Priorities:

An Agenda to Advance Nutrition and Dietetics Knowledge & Practice

2020 Edition

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Position	Taskforce Member
Taskforce Chair	Jennifer A. Garner, PhD, RD
Bench Research Representative	Kelly Anne Tappenden, PhD, RD
Clinical Research Representative	Nancy J. Emenaker, PhD, MEd, RDN, LD, FAND
Public Health Representative	Jinan Banna, PhD, RD, CDN
Ad-Hoc Government/NIH Representative	Rachel Fisher, MS, MPH, RD
Academy Board of Directors Representative	Kevin Sauer, PhD, RDN, LD
Academy Staff Support	Gabriela V. Proaño, MS, RDN Alison Steiber, PhD, RDN Kathryn Kelley, MPH

The authors would like to thank the following people and groups for their contributions to this project:

April N. Hackert MS, RDN, LD, CEDRD
Behavioral Health Nutrition dietetic practice group

Barbara Gordon MBA, RDN, LD, FAND
Research dietetic practice group

Dustin Valdez
Shepherd Research Lab, University of Hawai'i
Cancer Center

Kathleen Pellechia MS, RDN
Nutrition Informatics dietetic practice group

Kendra Kattelman PhD, RDN, LN, FAND
Nutrition and Dietetic Educators and Preceptors

Marie Spiker, PhD MSPH, RDN
Assistant Professor, University of Washington School
of Public Health

Angela Vivanti, DHSc, Fellow of DAA
Nutrition Care Process Research Outcomes
Committee (NCPRO)

Ricardo Martinez Barron, MS
PhD student in Nutrition Sciences, University of
Hawai'i at Mānoa

Vanessa Araujo Almeida, MS
PhD student in Nutrition Sciences, University of
Hawai'i at Mānoa

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Executive Summary

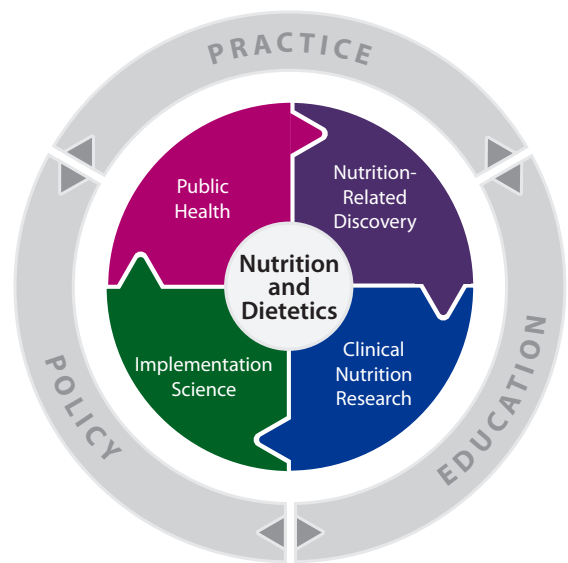
The Academy of Nutrition and Dietetics, the world's largest organization of food and nutrition professionals, is committed to improving the nation's health and advancing the profession of nutrition and dietetics. Beginning in 2018, the Academy embarked on an interactive process to assess emergent research needs and identify research priorities that, if addressed, would have the greatest impact on knowledge advancement and empowerment of nutrition and dietetics practitioners, students, interns and retired members. The priorities fall within four themes: nutrition-related discovery, clinical nutrition research, implementation science and public health. Progress within and across each of these themes will have a significant impact on human health and provides a tremendous opportunity to advance the field of nutrition and dietetics.

The Research Priorities Taskforce – convened to establish new research priorities – was comprised of representatives from key Academy bodies (the Council on Research and the Board of Directors), potential collaborators (e.g. the National Institutes of Health) and diverse areas of dietetic research and practice, including bench, or basic, nutrition science; clinical nutrition; and public health.

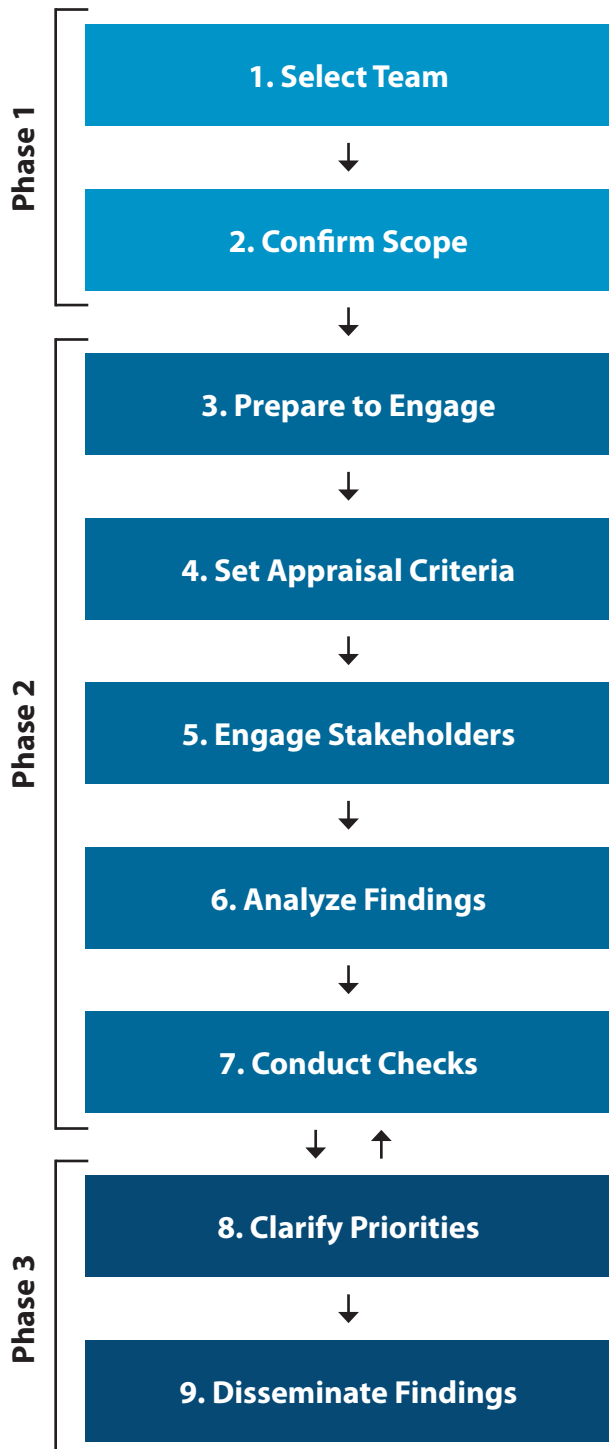
The appointed Taskforce defined a 9-step process, based on existing literature, for setting new Academy research priorities. The process was designed to be timeless and thus a helpful tool for future Academy teams tasked with revisiting the research priorities in future decades. This process includes selecting the team, confirming the team's scope of work, preparing to engage stakeholders, engaging stakeholders, setting appraisal criteria, scoring (or analyzing) findings, conducting member checks, clarifying and organizing the priorities and disseminating the final priorities.

The Academy research priorities are intended as a resource for both internal and external stakeholders. The priorities have applications for both undergraduate- and graduate-level education and mentoring; for use in clinical and community practice; for those in management roles; and as a tool to motivate and facilitate research collaborations across multiple practice areas. The Taskforce acknowledges that there are additional research priorities that may fall outside the scope of the Academy or are currently being undertaken by other agencies. The priorities listed in this document highlight research priorities for nutrition and dietetics professionals and will include collaboration with other disciplines on numerous topics.

The following report provides highlights of the work done by the Taskforce as well as brief summaries and some examples for each of the final priorities. These examples are not meant to be exhaustive but rather to provide some additional information to the reader regarding the priorities. For more details regarding the Taskforce process and outputs, please refer to the Research Priorities Strategies Development Taskforce (RPSD TF) Process manuscript (accepted for publication in the Journal of the Academy of Nutrition and Dietetics).



Summary of Research Priority Setting Process



The Taskforce defined a 9-step process for updating the Academy's research priorities. This process is based on published processes employed by other priority-developing groups and is an iterative process that is not time bound. It can be divided into 3 phases: phase 1 = preparation (steps 1 & 2); phase 2 = engagement and data collection (steps 3-7); and phase 3 = analysis and dissemination (steps 8 & 9). The purpose of outlining this process is to serve as a resource for future Academy teams tasked with setting new priorities. More details regarding the process can be found in the RPSD TF manuscript (accepted for publication in the Journal of the Academy of Nutrition and Dietetics).

- 1. Select Team:** *(Phase 1)*
Academy staff recruit Taskforce members to conduct priority revision process. Individuals are selected to represent a variety of nutrition and dietetic domains and stakeholder categories.
- 2. Confirm Scope:** *(Phase 1)*
Taskforce discusses and clarifies their Academy-provided Statement of Task and specifies which stakeholders to engage with during their process.
- 3. Prepare to Engage:** *(Phase 2)*
Taskforce decides data collection methods; prepares data collection tools; seeks support from relevant Academy units; and acquires Institutional Review Board approval.
- 4. Set Appraisal Criteria:** *(Phase 2)*
Taskforce creates scoring or prioritization criteria (i.e., criteria by which to evaluate drafted priorities) and specifies analyses to be completed with collected data.
- 5. Engage Stakeholders:** *(Phase 2)*
Taskforce collects relevant secondary data sources (e.g., recent Academy analyses or reports); sends surveys; and convenes interviews or focus groups to assess current member perspectives on potential research priorities.

6. **Analyze Findings:** *(Phase 2)*

Taskforce and Academy staff conduct qualitative and/or quantitative analyses of primary and secondary sources of information to capture priority-focused ideas. This step can be repeated as needed until sufficient stakeholder input is received.

7. **Conduct Member Checks:** *(Phase 2)*

Share preliminary findings and priority drafts (e.g. via FNCE® session, webinar or short report) to solicit feedback and ensure usability of outputs.

8. **Clarify Priorities:** *(Phase 3)*

Use feedback to refine priorities and any related content (e.g. priority descriptions, examples of potential projects, needed study designs) for maximal usability. This may include development of a framework for organizing the priorities. Priorities will continue to be refined and clarified as new feedback is received until group has finalized priorities.

9. **Disseminate Findings:** *(Phase 3)*

Distribute final priorities through multiple venues for maximal reach. Outputs may include a final report and manuscript providing a more detailed description of the priority-setting or priority revision process. Communication mechanisms may include a FNCE® session, Academy-hosted webinar, publication in the Journal of the Academy of Nutrition and Dietetics, Academy-wide email, relevant Academy list serves and social media and the Academy website.

The hallmark of this process is its focus on the solicitation and thorough consideration of stakeholder perspectives – primarily those of Academy members – as the main driver of the new research priorities.

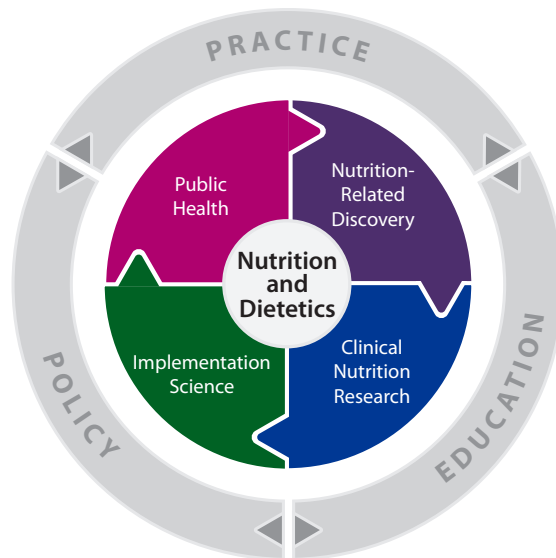
The Taskforce leveraged multiple sources of primary and secondary data to initiate the plan and to inform the final priorities, including:

- Notes from the 2016 Nutrition Impact Summit¹ interviews
- A one-question Member Engagement Zone survey* to generate initial idea
- A 19-question anonymous survey* distributed to all Academy members that gathered demographic information and a ranking of the draft research priorities based on importance and a set of established criteria.

Numerous calls were hosted with internal Academy stakeholders (e.g., the Board of Directors, Council on Research) and preliminary results were presented at FNCE® 2019 to complete the member checking process before the priorities were refined and finalized.

*Surveys are included in the RPSD TF manuscript (accepted for publication in the Journal of the Academy of Nutrition and Dietetics)

Academy Research Priority Framework



The final priorities were categorized into four themes relevant to nutrition and dietetics research: Nutrition-related Discovery, Clinical Nutrition Research, Implementation Science and Public Health. Influencing each of the themes is an overarching acknowledgment of the role that all priorities can play in informing nutrition and dietetics education, practice and policy.

Nutrition-related Discovery:

involves studying the fundamental mechanisms of biology and behavior underlying manifestations of both health and disease.²

Clinical Nutrition Research:

involves studies aimed at understanding better nutrition-related diseases, including the testing of interventions, behavioral and observational studies and outcomes research.²

Implementation Science:

includes studies with methods and strategies that facilitate the uptake of evidence-based practice and research into regular use by practitioners and policymakers.³

Public Health:

includes studies on the application of nutrition and public health principles to design programs, systems, policies and environments that aim to improve or maintain the optimal health of populations and targeted groups.⁴

The 2020 Academy Research Priorities

Nutrition-Related Discovery

1. Increase the understanding of absorption, digestion, metabolism and excretion processes in states of health and disease.
2. Advance our understanding of prenatal and neonatal nutrition factors, including parental health behaviors, impacting fetal development and childhood health.
3. Explore the role of the microbiome and of microbiome-supporting diets on health and disease prevention across the lifespan.

Clinical Nutrition Research

4. Validate the clinical characteristics of malnutrition in all its forms across adult, child and neonatal populations.
5. Clarify nutrient needs associated with optimal outcomes in special populations.
6. Assess the efficacy of and applications for integrative and functional medicine approaches to health promotion and disease management.

Implementation Science

7. Evaluate the costs and impact of improving and expanding delivery of medical nutrition therapy (MNT) and other nutrition and dietetics services across various medical conditions and identify opportunities that exist for improved MNT delivery.
8. Explore the role of the nutrition and dietetics practitioners in the utility and application of emerging technologies, information management and knowledge management processes to inform and advance nutrition and dietetics programming and practice.
9. Evaluate best practices for translating, disseminating and scaling nutrition and dietetics interventions across community and clinical settings.
10. Advance our understanding of effective strategies for maintaining nutrition-related behavior changes in diverse populations.

Public Health

11. Assess the multi-directional relationship between food systems – including various food production, processing and distribution practices – and nutrition and health outcomes.
12. Evaluate strategies to address current diet and health disparities and related chronic disease disparities among low-income and underrepresented persons.
13. Examine the impact of programs and policies that target social determinants of health on nutrition and nutrition-related health outcomes.

Nutrition–Related Discovery

1. Increase the understanding of absorption, digestion, metabolism and excretion processes in states of health and disease.

Nutrient absorption, digestion, metabolism and excretion are the most fundamental of human nutrition processes and each plays a central role in facilitating health. Development and refinement of precision nutrition capabilities relies on greater understanding of interindividual heterogeneity in these processes⁵ with the goal of identifying subgroups for targeted implementation of nutrition therapies. For example, limited research demonstrates differences in the prevalence of insulin resistance and dyslipidemia across ethnic groups.⁶ Greater understanding and identification of such subgroups will require nutrition genomics research, which includes nutrigenetics, nutrigenomics and nutrition epigenomics and is defined as "...how nutrients and genes interact and are expressed to reveal phenotypic outcomes, including disease risk."^{7,8} Confounding such efforts is the fact that existing datasets do not typically include sufficient data as a comprehensive dataset would include environmental, diet, metabolic phenotype, microbiome, genetic and epigenetic data.⁵

Given the applied nature of nutrition and dietetics practice, additional research is also needed to characterize differential impacts of nutrition therapies and related medications on digestion and absorption processes across population subgroups. For example, more research is needed to examine the effect of radiation therapy on metabolism and on pharmacokinetics. Such studies offer ripe opportunity for credentialed nutrition and dietetics practitioners to work side-by-side and collaborate with other health care professionals and disciplines to advance science and, ultimately, our clinical and community practice.⁵

2. Advance our understanding of prenatal and neonatal nutrition factors, including parental health behaviors, impacting fetal development and childhood health.

Nutrition during early stages of life – spanning from conception to the first 1,000 days – plays a significant role in a child's short-term survival, neurodevelopment and long-term health.^{9,10} During this time period, the brain grows more quickly than at any other stage of life and the provision of optimal nutrition is one of the key factors influencing early brain development.¹¹ In addition, early environmental exposures such as poor nutrition – especially during the periconceptual period – can result in epigenetic modifications and changes in gene expression that may adversely influence an offspring's long-term health risk, a concept known as Developmental Origins of Health and Disease.¹² Research on this important developmental phase may encompass a wide variety of topics, including, but not limited to, maternal diet, stress, weight status and environmental exposures and the implementation of neonatal feeding practices. Given that such exposures are not experienced in isolation from one another, more research is needed on the joint impact of these factors on health outcomes in infancy and beyond and on the underlying mechanisms driving these relationships.¹³ Developmental outcomes of interest include growth, immunity, organ development and function, behavior and temperament.¹³⁻¹⁶ Studies should endeavor to use consistent reporting practices, especially regarding nutritional intake and growth outcome data.¹⁷ To advance nutrition and dietetics practice and the impact of prenatal- and neonatal-focused nutrition interventions, more research is also needed on barriers¹⁸ to implementing neonatal nutrition guidelines by registered dietitian nutritionists and other health professionals.

Additional avenues of worthy investigation include identifying effective strategies for supporting breast-feeding best practices (e.g., as done by Brockway et al.¹⁹). In addition, improving our understanding of age-appropriate and adequate complementary feeding practices^{20,21} is also of great importance along with supplementation with iron and folic acid and/or multiple micronutrients during pregnancy, provision of multiple micronutrients (in addition to iron) during infancy, supplementation with essential fatty acids during pregnancy and infancy and fortified food supplements provided during pregnancy and infancy.¹¹ Research to support policies and practices that facilitate healthy dietary patterns among parents, infants and young children will have a substantial impact on long-term health outcomes at the population level.

3. Explore the role of the microbiome and of microbiome-supporting diets on health and disease prevention across the lifespan.

Over the past decade, there has been a tremendous growth in research enabling us to better understand the microbiome – the genetic material of all the microbes (bacteria, fungi, protozoa and viruses) that live on and within the human body.^{22,23} The microbiome plays a critical role in immune function, preventing colonization of harmful bacteria and viruses, and in food metabolism. In fact, the microbiome, especially the gut microbiome, is thought to affect almost all aspects of human health. Each person has a unique microbiome, to which there are many contributing factors such as mode of infant delivery, environmental exposures, antibiotic use, and, very importantly, diet. However, the understanding of the interrelationships between food choices and the microbiome and their collective effect on the host has just begun. Many questions remain pertaining to how food choices can be used to modulate the microbiome, how this affects health and what other factors must be considered in the interpretation of study results.^{24,25}

Clinical Research

4. Validate the clinical characteristics of malnutrition in all its forms across adult, child and neonatal populations.

The Academy and the American Society for Parenteral and Enteral Nutrition developed consensus statements on malnutrition clinical characteristics (MCC) to provide consistent definitions and diagnostic criteria for the identification and documentation of malnutrition (undernutrition) in pediatric and adult patients.^{26,27} In addition, the Academy is collaborating on ongoing projects related to a Malnutrition Quality Initiative Learning Collaborative.²⁸ Given that other malnutrition diagnosis criteria exist, such as those defined by the European Society of Clinical Nutrition and Metabolism and the Global Leadership Initiative on Malnutrition, it is vital for the Academy/ASPEN MCC to be validated. A pilot trial²⁹ was able to inform a larger validation study that is currently ongoing for both the adult and pediatric population. This study will not only collect health and nutrition outcomes such as severity of illness and changes in nutrition diagnosis of malnutrition based on MCC findings, but also quantify the level of nutrition care needed to improve outcomes to better inform staffing levels. Results from this MCC trial will inform further research including the use of MCC in neonatal populations. Clinical characteristics and validation of definitive criteria for other forms of malnutrition, such as that which is micronutrient-related or overweight and obesity-related, remains under-examined and should be the focus of more research in coming years.

5. Clarify nutrient needs associated with optimal outcomes in special populations.

Diet quality is a modifiable factor influencing health and disease risk throughout the lifecycle. Additional research is needed to investigate adequate macro- and micronutrient intake for the promotion of optimal health among populations with potentially unique nutrition needs. Such populations include those who are post-surgical; critically ill adults and children; individuals with intellectual and developmental disabilities; and those who are aging and experiencing neurological changes, among others.

A key example of one such population is older adults. Nutrition plays an important role in aging-related physical and cognitive changes. The European Society for Clinical Nutrition and Metabolism (ESPEN) recommends that older adults consume at least 1.0 to 1.2 g protein/kg body weight/day to maintain muscle mass and strength.³⁰ However, older adults face a number of health challenges which have yet to be addressed through more specific recommendations for nutrient intake, such as Alzheimer's disease and related dementias. As dietary protein and its constituent amino acids may play an important role in long-term cognition, additional research is needed to develop specific recommendations regarding protein intake or intake of specific amino acids for maintaining optimal cognitive functioning.³¹ Current evidence does not allow for such conclusions to be drawn. Large randomized clinical trials are needed to establish the optimal forms, dose and timing of dietary protein intake (and other nutrients) to elucidate requirements for older adults and in special populations, such as post-bariatric and other surgical patients and the critically ill.³² Recent evidence also links nutrition to psychological outcomes and nutrition implicated in behavior, mood and in the pathology and treatment of mental illness. Credentialed nutrition and dietetics practitioners have a role in using nutrition strategies to achieve quality of life for individuals with intellectual and developmental disabilities³³ and may be effective in preventing poor cognitive health, such as severe acute malnutrition (very low weight-for-height), chronic undernutrition (as evidenced by intrauterine growth retardation and linear growth retardation or stunting), iron deficiency anemia and iodine deficiency. Yet, evidential proof of the effectiveness of other potential strategies is needed.¹¹

6. Assess the efficacy of and applications for integrative and functional medicine approaches to health promotion and disease management.

As integrative and functional nutrition practices rise in popularity, it is important for credentialed nutrition and dietetics practitioners to be leaders in the expansion of the evidence base and the evidence-based application of these practices. More than 30 percent of U.S. adults use complementary medicine, with natural products (dietary supplements including herbs, fish oil, etc.) being the most common.³⁴ The National Institutes of Health's National Center for Complementary and Integrative Health (NCCIH) leads research on integrative and functional treatment approaches and has identified the safety, impacts and underlying mechanisms of mind and body practices and natural products as key areas of study.³⁵ The Academy's Registered Dietitian Nutritionists in Integrative and Functional Medicine dietetic practice group, in collaboration with the Academy's Quality Management Committee, have outlined Standards of Practice and Standards of Professional Performance for registered dietitian nutritionists. These standards emphasize the use of evidence-based practices and the best available evidence. It is vital that the Academy and credentialed nutrition and dietetics practitioners in this area collaborate with federal agencies to conduct basic, mechanistic, translational and intervention studies to inform high-quality efficacy and effectiveness trials that will elucidate the role of such approaches in promoting health and managing disease.³⁶

Implementation Science

7. Evaluate the costs and impact of improving and expanding delivery of medical nutrition therapy (MNT) and other nutrition and dietetics services across various medical conditions and identify opportunities that exist for improved MNT delivery.

The Academy defines MNT as “an evidence-based application of the Nutrition Care Process. The provision of MNT (to a patient/client) ...typically results in the prevention, delay or management of diseases and/or conditions” that is provided by a nutrition and dietetics practitioner.³⁷ Multiple publications have demonstrated the clinical effectiveness and cost benefits of MNT for patients with conditions such as dyslipidemia, cardiometabolic risk factors, diabetes and chronic kidney disease.³⁸⁻⁴¹ MNT is, therefore, a component of clinical practice recommendations and guidelines of the American Diabetes Association, the American Heart Association, the American College of Cardiology, the Obesity Society and numerous Academy evidence-based nutrition practice guidelines. However, broad access to MNT by a registered dietitian nutritionist is currently limited by existing Medicare coverage policies. As health care costs continue to rise, it will be important to evaluate and demonstrate the effectiveness and cost savings of MNT across a wide range of conditions. It is also important to understand barriers and facilitators to access to MNT and how this differs by population, setting, location, etc. The Academy has been working on a Nutrition Series project that will examine the barriers and facilitators of access to high quality nutrition care and the impact of RDNs on three conditions: diabetes, chronic kidney disease and hypertension.

Further research is also needed to support the successful integration of evidence-based practices into routine care and to enhance delivery of MNT across practice settings. Delivery of MNT to critically ill patients, for example, remains a significant challenge given patient heterogeneity and their higher complication risk. Studies that examine the assessment, timing, dose and composition of MNT (including cost-effectiveness and staffing) are of urgent need in this patient population.⁴²

8. Explore the role of the nutrition and dietetics practitioners in the utility and application of emerging technologies, information management and knowledge management processes to inform and advance nutrition and dietetics programming and practice.

Due to the rapid development and incorporation of emerging technologies into health care practice, it is vital that nutrition and dietetics practitioners remain abreast of these technologies and explore how to use them effectively in nutrition care. This was emphasized in the Academy’s Council on Future Practice Visioning Report in 2017, which encouraged dietetic practitioners to enhance their digital literacy and embrace technological advances in their work.⁴³ Relevant technological advancements include nutrition informatics, artificial intelligence, telehealth and mobile and wearable technologies.⁴⁴⁻⁴⁶ It will be prudent for credentialed nutrition and dietetics practitioners and the members of the new Nutrition Informatics dietetic practice group to collaborate with other vested parties, such as data scientists and engineers, to understand best practices for using such technology in clinical and community-based practice and for the benefit of nutrition science research and position credentialed nutrition and dietetics practitioners as leaders in informatics by understanding the involvement of RDNs in these roles, tracking educational opportunities and encouraging registered dietitian nutritionists to publish informatics-related work.

9. Evaluate best practices for translating, disseminating and scaling nutrition and dietetics interventions across community and clinical settings.

The translation of research findings into practice is an imperative, yet complex process that bears weight for our practice-focused profession. For interventions to be used effectively in practice, those interventions must undergo efficacy and effectiveness testing (i.e., does it work under optimal conditions and in the real-world?) and be subject to questions of whether it will be accepted by the target audience (i.e., dissemination research) and how it can be adopted by applicable providers and larger health care systems (i.e., implementation research).⁴⁷ Numerous frameworks exist to support such efforts, regardless of the intervention of focus; researchers aiming to support the translation of a dietetics intervention should consider how to leverage such frameworks.^{47,48} The ultimate goal of this work is to implement and disseminate evidence-based policies, programs and interventions at the appropriate scale and quality to achieve broad impact. Credentialed nutrition and dietetics practitioners have an opportunity to identify methods and approaches best suited to address implementation challenges, evaluate effective strategies in varied populations and to enhance the utilization of existing knowledge, tools and frameworks that have been employed in other domains to promote the success of nutrition interventions across community and clinical settings.

10. Advance our understanding of effective strategies for maintaining nutrition-related behavior changes in diverse populations.

Poor nutrition is a leading contributor to the development of chronic disease, such as type 2 diabetes, cardiovascular disease and some cancers.⁴⁹ Thus, balanced nutrition, as defined by the Dietary Guidelines for Americans, is important for chronic disease prevention.⁵⁰ RDNs can implement nutrition-related behavior change strategies to not only prevent, but also to manage, chronic disease development and progression. MNT implemented and monitored by an RDN, includes behavior change strategies aimed at supporting the consumption of nutrient-dense foods and providing interventions to address medical conditions and diet-related disease. As the impact of nutrition on mental health is further revealed, a greater awareness of body size prejudice and use of behavioral modification strategies that support mental and physical well-being are also needed.⁵¹ Evidence-based recommendations have been developed for the initiation of nutrition-related behavior change⁵² and strategies leading to the improvement of health outcomes can be best implemented through the lens of body positivity.⁵³ Researchers should examine strategies for reducing the risk of chronic disease development and enhancing dietary, mental and physical outcomes from MNT through RDN-facilitated behavior change and behavior maintenance interventions.

Maintenance of behavior change, as is found in all interventions focused on health behavior change, is challenging.⁵⁴ Theories on the maintenance of behavior change (e.g. self-determination theory, self-regulation theory) provide a framework to conceptualize the differential nature and role of motives, self-regulation, resources (psychological and physical), habits and environmental and social influences on behavioral maintenance.⁵⁴ The relevance and application of these theoretical frameworks most likely differ by individual characteristics such as age, gender, socioeconomic status, education level, culture, health status, food security status and more. More research is needed to understand strategies for using these frameworks as part of nutrition-related behavioral maintenance and how the use may vary across population subgroups.

Public Health

11. Assess the multi-directional relationship between food systems – including various food production, processing and distribution practices – and nutrition and health outcomes.

The United Nations projects that the world population will reach 9.8 billion by 2050 and exceed 11 billion by 2100.⁵⁵ Domestically, our U.S. population is expected to grow to between 376 and 447 million individuals by 2060.⁵⁶ As the domestic and global population grows, so will demand for food. Identifying strategies to ensure a nutritious, safe, equitable and ecologically sustainable food supply is, and will continue to be, a critical challenge. Recent estimates suggest that U.S. agricultural production can accommodate domestic calorie food needs in the coming decade, but that substantial agricultural shifts are needed to support healthier diets (e.g., more acreage for fruit and vegetable production).⁵⁷ The food system is a vast, complex, and increasingly global network. Collaborative, multi-disciplinary research methods are needed to better understand the mechanics of the system. More research is needed that seeks to evaluate innovative approaches to improving the system and understanding its impacts on food security, nutrition and health. Understanding the impact of current and potential food system practices on food availability, affordability, access and diet quality is of particular importance as governments, businesses and nongovernment organizations consider whether the food system can be a lever for public health benefit and how to operate in the context of a burgeoning population.^{58,59}

12. Evaluate strategies to address current diet and health disparities and related chronic disease disparities among low-income and underrepresented persons.

Despite the existence of various local and federally-funded programs to make healthy foods accessible to lower-income and underserved households, disparities in diet quality have worsened among U.S. adults.⁶⁰ Adolescents experience such disparities as well; adolescents with parents of higher socioeconomic status had healthier dietary patterns, including greater consumption of fruits and vegetables and lower consumption of sugar-sweetened beverages.⁶¹ Numerous, modifiable factors have been blamed for these disparities, including poor availability of healthy foods, aggressive marketing of unhealthy foods, insufficient education regarding healthy food choices, and issues of healthy food affordability, yet efforts to address these factors are complicated by conflicting ideals of health promotion and individual choice.⁶² Given these diet disparities and the known connection between diet and health, the existence of persistent health disparities in the U.S., such as that seen for diabetes rates,⁶³ is not surprising. More research is needed to inform the design and implementation of strategies to address diet and chronic disease disparities in underrepresented groups via comprehensive policy, systems and environmental approaches.⁶⁴⁻⁶⁶

13. Examine the impact of programs and policies that target social determinants of health on nutrition and nutrition-related health outcomes.

Health is impacted by numerous, interrelated factors. The root causes of these have been referred to as social determinants of health, which are defined as “conditions in the environments in which people are born, live, learn, work, play, worship and age that affect a wide range of health, functioning and quality-of-life outcomes and risks.”⁶⁷ These conditions have been organized into five categories: neighborhood and built environment, health and health care, social and community context, education and economic stability. Addressing inequities across these domains has been identified as a “vital direction” for the health care field⁶⁸ and such initiatives hold promise for improving health outcomes and health care costs.⁶⁹ Yet, relatively few resources have been directed to this end. A variety of context-specific factors, including current discourse, existing data and institutional norms, influence whether social determinants are addressed in government policy agendas.⁷⁰ At the organizational level, even relatively well-supported approaches, such as screening patients for social determinants of health in health care settings, may be ineffective or inadvertently harmful without greater attention to proper implementation.⁷¹ Research is needed to inform, explore and evaluate actionable approaches to addressing social determinants of health in practice in order to realize potential benefits, including improved diet quality and diet-related health outcomes.

Research Priority Applications

The 2020 Academy Research Priorities have a wide variety of applications relevant to both internal (i.e. Academy-affiliated) and external stakeholders.

Applications in Undergraduate and Graduate Education and Mentoring

The research priorities and the methods used to generate them have great applications in the classroom. In particular, as the profession moves towards a required graduate degree in 2024, understanding the research process used by the Academy and systematic member involvement in research priority setting provides a great teaching tool about research. Students can also gain from understanding how the priorities might impact their preferred areas of future practice. In addition, the priorities can assist graduate students with developing research questions or justification of their research plans. The same can be said for current research faculty.

Applications in Clinical and Community Practice

The research priorities can guide quality improvement projects and research within clinical and community settings. As implementers of evidence and research, clinical and community-based practitioners can play a more active role in assessing the adequacy of the evidence base for their scope of work and in informing future iterations of the research priorities, specifically related to emerging nutrition topics and persisting public health concerns.

Applications in Management

Some priorities pertain to management, for example priorities calling for the evaluation of costs and impacts associated with improving delivery of food and nutrition-related services. Collaborations with technology experts can offer evidence-based strategies for enhancing the implementation and monitoring of nutrition and public health services. These are great examples of the need for dietetics practice research that blends management of food and nutrition systems, clinical, leadership, knowledge, skills and experience.

Applications in Research & Collaboration

The priorities provide an opportunity for Academy-affiliated scientists to reflect on current research efforts and consider how work can facilitate the identified needs. The Taskforce was asked to recommend research designs in addition to research topics. It became clear, though, that the diversity of research needs will merit a diversity of research approaches. Researchers should work with teams to employ the most rigorous study design possible for the research question and setting.

Beyond individual use of these priorities by Academy members and Academy organizational units, it is important that our numerous external stakeholders are aware that the nutrition and dietetics profession establishes research priorities and pursues the systematic advancement of nutrition knowledge. The priorities can help to facilitate important discussions regarding collaboration opportunities with like-minded organizations and other health care professionals.

Research Priority Alignment

The Academy's Strategic Plan⁷²

The Taskforce has always placed focus on aligning their efforts with the Academy's Strategic Plan, which was used throughout the priority setting process (for example, to facilitate coding and categorization of member-contributed ideas) and the final priorities align with it in many ways. The Strategic Plan's focus areas include prevention and wellbeing, health care and health systems and food and nutrition safety and security. Please find below examples of how the Academy's revised research priorities align with the Strategic Plan:

Prevention & Well-being: Ex. Evaluate strategies to address current diet and health disparities and related chronic disease disparities among low-income and underrepresented persons.

Health Care and Health Systems: Ex. Validate the clinical characteristics of malnutrition "in all its forms" across adult, child and neonatal populations.

Food and Nutrition Safety & Security: Ex. Assess the impact of differing production, processing and food system practices on food access, diet quality and other nutrition outcomes.

The Nutrition Care Process^{73,74}

The Nutrition Care Process and its accompanied terminology is designed to improve the consistency and quality of nutrition care and the predictability of nutrition care outcomes. The NCP has been utilized by nutrition and dietetics professionals for almost twenty years and is a widely adopted framework forming the basis of the profession. Given the practice implications of the revised research priorities, it may be helpful to demonstrate how the priorities align with the NCP model. Please find below examples of how the Academy's revised research priorities align with the NCP:

Assessment: Ex. Clarify nutrient needs associated with optimal outcomes in special populations (e.g. post-surgical, critically ill adults, critically ill children, children with developmental disabilities, aging-related neurological changes, etc.).

Diagnosis: Validate the clinical characteristics of malnutrition "in all its forms" across adult, child and neonatal populations.

Intervention: Ex. Advance our understanding of effective strategies for maintaining positive nutrition-related behavior changes in diverse populations.

Monitoring and Evaluation: Ex. Evaluate the costs and impact of improving delivery of MNT and other nutrition and dietetic services across various medical conditions and identify opportunities that exist for improved MNT delivery.

Outcomes management: Ex. Leverage informatics systems and real-life data such as data collected with the Academy's ANDHII platform to conduct big data analytics and demonstrate efficacy of nutrition care in health outcomes.^{75,76}

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