



# Scientific Report of the 2025 Dietary Guidelines Advisory Committee

Advisory Report to the Secretary of Health and  
Human Services and Secretary of Agriculture

United States Department of Health  
and Human Services

United States Department of Agriculture

# Scientific Report of the 2025 Dietary Guidelines Advisory Committee



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**Suggested citation:** 2025 Dietary Guidelines Advisory Committee. 2024. *Scientific Report of the 2025 Dietary Guidelines Advisory Committee: Advisory Report to the Secretary of Health and Human Services and Secretary of Agriculture*. U.S. Department of Health and Human Services.

<https://doi.org/10.52570/DGAC2025>

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The Honorable Xavier Becerra  
Secretary of Health and Human Services  
200 Independence Avenue, SW  
Washington, DC 20201

The Honorable Thomas Vilsack  
Secretary of Agriculture  
1400 Independence Avenue, SW  
Washington, DC 20250

Dear Secretaries Becerra and Vilsack,

On behalf of the 2025 Dietary Guidelines Advisory Committee, it is our privilege to submit the final report to inform the development of the *Dietary Guidelines for Americans, 2025–2030*. We are truly honored by this prestigious appointment and deeply appreciative for the trust and confidence you have placed in the Committee. During the past 22 months, we have engaged in extensive Committee deliberations, conducted rigorous reviews of data and scientific literature, and collaborated closely to prepare this report, gaining valuable insights from one another throughout the process. We had the privilege of working with the outstanding staff at HHS and USDA and were continually inspired by members of the public who submitted their thoughtful comments. It is our sincere hope that this report provides similar inspiration to the public whom this Committee was asked to serve.

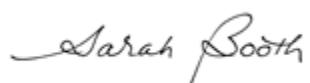
In alignment with the Federal Advisory Committee Act and the Committee's charter, we were tasked with reviewing the current body of nutrition science on specific topics and questions and developing a scientific report that includes our independent, science-based advice for HHS and USDA to consider. In 2017, the National Academies of Sciences, Engineering, and Medicine (NASEM) issued the report, *Redesigning the Process for Establishing the Dietary Guidelines* and in 2023, issued the report, *Evaluating the Process to Develop the Dietary Guidelines for Americans, 2020–2025*. We implemented many of the recommendations from these NASEM reports. Such improvements have enabled the 2025 Dietary Guidelines Advisory Committee to include new scientific evidence in developing its conclusions. As we reflect on the evolution of the *Dietary Guidelines* process, we appreciate how NASEM has provided guidance to meet the highest standards for scientific rigor and integrity.

The Committee considered questions that examined relationships between diet and health across the lifespan through a health equity lens. We believe that emphasizing health equity throughout our report can inform the development of the *Dietary Guidelines for Americans, 2025–2030*, which will support U.S. individuals in meeting their dietary goals. Additionally, we encourage federal agencies and fellow researchers to consider the research priorities we identified during our deliberations. These priorities not only aim to deepen our understanding of what the American public eats and how it is linked to health outcomes, but also to expand the inquiry into why and how dietary patterns are shaped.

In his 2000 Dietary Guidelines Advisory Committee letter to the Secretaries of HHS and USDA, Dr. Cutberto Garza stated, "Although the committee reviewed the evidence objectively, no doubt some voices will question our collective and individual objectivity. Recognizing this inevitability, I hope that the rationally based controversy will stimulate scientific research." We could not have expressed this better. We cannot stress enough that every member of this Committee has worked collaboratively and tirelessly, upholding the highest standards of integrity throughout the preparation of this report. The Committee considered public comments and responded to outstanding peer review. Differences in interpretation were discussed and debated with mutual respect, and for each decision, consensus was reached. Like Dr. Garza, we hope that the criticisms based on merit will stimulate new research that will benefit the American public. This process is only as strong as the data available for the Committee's review, and further research will strengthen the foundation on which future guidelines are built.

We look forward to seeing the contributions of our Committee incorporated in the *Dietary Guidelines for Americans, 2025–2030*.

Sincerely,



**Sarah L. Booth, PhD**  
*Chair*



**Angela Odoms-Young, PhD**  
*Vice Chair*

# Dietary Guidelines Advisory Committee Membership and Federal Support Staff

## 2025 Dietary Guidelines Advisory Committee Membership

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## Federal Support Staff

The Departments of Health and Human Services (HHS) and Agriculture (USDA) are responsible for updating the *Dietary Guidelines for Americans* every 5 years. As part of this process, the Departments appoint an external Federal Advisory Committee to review the current body of nutrition science. HHS and USDA provided support to the Committee throughout its tenure. Federal staff support included assisting the Committee during its review of evidence, coordinating meetings, documenting decisions, and supporting transparency via regular updates to DietaryGuidelines.gov and NESR.usda.gov and corresponding list serv communications. The protocols, findings, conclusion statements, integration, and advice to the Departments contained in this report are the independent work of the Committee.

Within HHS, the Office of Disease Prevention and Health Promotion (ODPHP) in the Office of the Assistant Secretary for Health (OASH), and within USDA, the Center for Nutrition Policy and Promotion (CNPP) within Food and Nutrition Service (FNS), Food, Nutrition, and Consumer Services (FNCS) are the lead agencies that supported the 2025 Dietary Guidelines Advisory Committee. Staff listed below are from these respective agencies, unless otherwise noted.

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# Part A: Executive Summary

The Departments of Health and Human Services (HHS) and Agriculture (USDA) established the 2025 Dietary Guidelines Advisory Committee (Committee) to examine scientific evidence on specific nutrition and public health topics and provide independent, science-based advice and recommendations to be considered by the Departments in the development of the *Dietary Guidelines for Americans, 2025-2030*. HHS and USDA identified topics and scientific questions to potentially be examined by the 2025 Committee and posted them for public comment before establishing the Committee. After the Committee was appointed, it considered the proposed questions and determined if questions should be added, refined, or removed as it prioritized questions for its review. The Committee used the criteria of relevance, importance, potential impact to federal programs, avoiding duplication, and research availability during its prioritization process. The Committee used 3 approaches to examine the evidence: data analysis, systematic reviews, and food pattern modeling. Each of these approaches has its own rigorous, protocol-driven methodology, and each played a complementary role in examining the science. The type of information the Committee needed to answer each scientific question determined which approach it would use to review the evidence (see [Part C. Methodology](#) for more information on the Committee's process for examining the science and for a complete list of scientific questions addressed by the Committee).

As was true for recent Committees, the 2025 Committee's work took place against a backdrop of several significant nutrition-related issues in the United States (see [Part D. Chapter 1: Current Dietary Intakes and Prevalence of Nutrition-Related Chronic Health Conditions](#)).

- Chronic health conditions for which poor nutrition is a risk factor—including overweight and obesity, type 2 diabetes, cardiovascular disease (CVD), metabolic syndrome, and certain cancers—are prevalent, presenting major public health challenges. For example, prevalence of overweight and obesity is 73 percent among U.S. adults ages 20 years and older and 36 percent among children and adolescents ages 2 through 19 years, and prevalence of prediabetes is 38 percent among individuals ages 12 through 19 years. The prevalence of conditions such as overweight, obesity, and prediabetes at young ages is of particular concern because of their effects on the current health of the child as well as the risks of persistent chronic conditions into adulthood.
- Data show significant disparities in prevalence of nutrition-related chronic health conditions between sociodemographic groups. For example, the prevalence of obesity is lower among non-Hispanic Asian children and adults compared to all other racial and/or ethnic groups examined, and the prevalence of obesity is also lower among children with higher family income compared to those with lower family income. Among adults, the prevalence of obesity is lower among non-Hispanic Asian adults and higher in non-Hispanic Black adults. Also among adults, the prevalence of obesity, hypertension, and type 2 diabetes is higher among families with lower incomes compared to higher incomes. Education data show that prevalence of

obesity and prevalence of hypertension among adults are both lower among those with higher educational attainment (college degree or above) than those with lower educational attainment.

Against this backdrop, the Committee's report is particularly notable for its intentional focus on health equity, which it defined as the state in which everyone has a fair and just opportunity to attain their highest level of health. Specifically, the Committee was tasked with examining the relationship between diet and health across all life stages using a health equity lens, ensuring that the implications of factors such as socioeconomic position, race, ethnicity, and culture were described and considered to the greatest extent possible for each scientific question and based on the information available in the scientific literature and data. A primary goal of centering health equity is to help HHS and USDA ensure that the resulting guidance in the *Dietary Guidelines for Americans (Dietary Guidelines)* is relevant to people of diverse racial, ethnic, socioeconomic, and cultural backgrounds, thereby increasing the potential of the guidance to meet nutrient needs, promote health, and reduce risk of chronic disease.

The Committee considered health equity as a guiding principle as it examined the evidence (see [\*\*Part B. Chapter 2: Health Equity and Nutrition\*\*](#)). From protocol development to evidence integration, the Committee worked to ensure that factors such as socioeconomic position, race, ethnicity, and culture were considered to the greatest extent possible based on the available evidence. For example, the Committee conducted an evidence scan on culturally tailored dietary interventions to describe the available evidence and make recommendations regarding future systematic review efforts to continue work on this important topic. As a second example, the Committee's data analysis efforts included a granular look at how dietary intakes and prevalence of chronic diseases vary among sociodemographic groups. As a third example, the Committee was the first Committee to use diet simulations—a systems science approach—to evaluate proposed dietary patterns, considering variability in the selection and consumption of foods and beverages representing differing preferences, cultures, and traditions.

The Committee's report also leverages advancements in the methods used to examine the evidence. The Committee established synthesis plans in each of its systematic review protocols, and answered select scientific questions using systematic review with meta-analysis. In addition, all systematic reviews and food pattern modeling reports underwent external peer review in an effort to further align with recommendations from a National Academies report.

The Committee addressed a broad range of important diet- and health-related questions, building on the work of previous Committees and expanding their reviews to new topics. The Committee addressed new topics, including food sources of saturated fat consumed and risk of CVD; dietary patterns with varying amounts of ultra-processed foods; strategies for improving diet quality and weight management, which involved new reviews on portion size and frequency of meals and/or snacking; and practical guidance about how to feed younger children in terms of caregiver feeding styles and practices that support children's consumption of healthy foods.

In addition to these distinguishing features, the Committee continued the lifespan approach by reviewing evidence on the period of birth through older adulthood, including during pregnancy and lactation.

The remainder of this Executive Summary provides brief summaries of the Committee's topic-specific reviews of the science through data analysis, systematic reviews, and food pattern modeling. Through these reviews the Committee also generated advice for the Departments, future Committees, and the research community, and outlined specific research needs to fill gaps in the current evidence (see [Part E. Chapter 2: Future Directions](#)). The Committee's report also includes a chapter that integrates its findings and conclusions and presents its overarching advice to the Departments for the *Dietary Guidelines for Americans, 2025-2030 (Part E. Chapter 1: Overarching Advice to the Departments)*; that chapter is summarized at the end of this Executive Summary.

## Current Dietary Intakes Throughout the Lifespan

Consumption of nutrient-dense foods and beverages is critical to meeting nutrient needs essential for health throughout the lifespan, from growth and development during pregnancy and childhood through healthy aging during adulthood. Few U.S. individuals, however, consume a dietary pattern that aligns with *Dietary Guidelines* recommendations, regardless of age, race, ethnicity, or sociodemographic group examined. Therefore, nearly all U.S. individuals can benefit from shifting to healthier dietary patterns. Social determinants of health, which include economic, environmental, social, educational, and structural factors, play a role in dietary intakes throughout the lifespan because they impact the ability of individuals and population groups to access healthy foods and achieve nutrition recommendations.

The Committee's review of current U.S. dietary intakes indicates that across the lifespan, intakes of Vegetables; Fruits; Dairy and Fortified Soy Alternatives; Seafood; Nuts, Seeds, and Soy Products; and Whole Grains are generally lower than current recommendations, while intakes of total Grains (including Refined Grains); total Protein Foods; and Meat, Poultry, and Eggs are generally at or above current recommendations. These intakes have ramifications for nutrient intakes and status throughout life. Based on dietary intake, biomarker data, and relevance to health, for individuals ages 1 year and older, vitamin D, calcium, potassium, and dietary fiber are nutrients of public health concern due to underconsumption; and sodium, added sugars, and (for ages 2 years and older) saturated fat are nutrients of public health concern due to overconsumption. Additional nutrients are of public health concern for certain individuals only during specific life stages.

Each individual life stage holds unique implications for dietary intake and the risk of disease. In addition, during certain periods of the lifespan, dietary shortfalls and their associated risks may pose greater threats to long-term health. Diet quality is relatively higher in early childhood compared to later childhood and adolescence. The poor nutrient intakes of adolescents, particularly females—paired with potential for rapid growth and development during this period—are concerning, both at the individual level and for the possible intergenerational impacts. Diet quality is somewhat higher for older adults compared to younger adults, though several specific nutrient concerns remain. Also within each life stage, opportunities exist to provide specific advice to individuals about food components that provide key nutrients at that life stage and for ways they (and their caregivers, as applicable) can make healthy food choices and employ strategies to improve diet quality.

## Dietary Patterns and Specific Dietary Components Across Life Stages

The Committee examined a range of topics related to dietary intakes across life stages, including the relationship between overall dietary patterns and specific dietary components and a series of broad health outcomes.

### Dietary Patterns

Dietary patterns, which comprise usual quantities and frequencies of foods, beverages, and nutrients that are consumed during a given time frame or life stage, may be influenced by many factors such as population norms, personal preferences, and cultural foodways. The Committee examined evidence on relationships between dietary patterns and growth, body composition, and risk of obesity (including gestational weight gain and postpartum weight change); cardiovascular disease; type 2 diabetes; breast cancer; colorectal cancer; and age-related cognitive decline, dementia, Alzheimer's disease, and mild cognitive impairment. It also examined evidence on relationships between dietary patterns in pregnancy and maternal and infant outcomes, including risk of hypertensive disorders of pregnancy, risk of gestational diabetes mellitus, gestational age at birth, and birth weight. The studies reviewed included a variety of dietary patterns from multiple countries, which is consistent with the aim of the *Dietary Guidelines* to provide nutrition advice that represents a variety of cultural foodways.

As the Committee considered the evidence, which encompassed multiple life stages, a dietary pattern emerged that was consistently related to beneficial health. This healthy dietary pattern for individuals ages 2 years and older is higher in vegetables, fruits, legumes (i.e., beans, peas, lentils), nuts, whole grains, fish/seafood, and vegetable oils higher in unsaturated fat, and lower in red and processed meats, sugar-sweetened foods and beverages, refined grains, and saturated fat. Some of these healthy dietary patterns also include consumption of fat-free or low-fat dairy and foods lower in sodium, and/or may include plant-based dietary options.

### Beverages

Beverages may be consumed as part of meals or snacks, as a meal or snack, or sipped throughout the day. Beverages are key contributors to hydration and to energy and nutrient intakes in U.S. dietary patterns. Although some beverages provide dietary and health benefits, consumption of higher quantities of certain beverages can contribute to excess intake of energy as well as certain nutrients that should be limited.

The Committee examined evidence on relationships between beverage consumption and growth, body composition, risk of obesity, and risk of type 2 diabetes across the lifespan. Given that beverages vary in energy content and nutrient composition—differences that may be associated with beverages' different impacts on health outcomes—various types of beverages were examined in separate questions. These beverages included dairy milk and milk alternatives, 100% juice, sugar-sweetened beverages (SSB), and low- and no-calorie sweetened beverages (LNCSB). Taken together, the Committee's findings showed that SSB are associated with unfavorable health outcomes in infants, children, adolescents, adults, and older adults, based on evidence graded as moderate, and that total milk and higher-fat milk may be associated

with favorable health benefits for growth, body composition, and risk of obesity in younger children ages 2 through 5 years, based on evidence graded as limited. The Committee could not draw a conclusion about the relationship between consumption of milk with different fat content by older children, adolescents, adults, or older adults and these outcomes because of substantial concerns with the body of evidence. The Committee decided that evidence is not sufficient to advise changing current *Dietary Guidelines* recommendations for primary consumption of unsweetened fat-free and low-fat milk across the lifespan. The Committee's systematic reviews suggest that a relationship does not exist (i.e., neither a beneficial nor an adverse relationship exists) between 100% juice consumption or LNCSB consumption and growth, body composition, or risk of obesity in children, adolescents, adults, or older adults. Finally, no conclusion statements about beverages could be drawn for the life stages of pregnancy and postpartum, indicating this area should be a research priority so that comprehensive guidance on beverage intake can be developed.

These findings support existing general recommendations for beverage consumption provided in the *Dietary Guidelines*, which emphasize consuming water and beverages that contribute beneficial nutrients, such as fat-free and low-fat milk and 100% juices; and reducing intake of beverages (e.g., SSB) that contain calories while contributing limited or no beneficial nutrients. The Committee suggested enhancements to existing recommendations, including an emphasis on plain drinking water as the primary beverage for people to consume, specificity regarding unsweetened fat-free and low-fat dairy milk and unsweetened fortified soy beverages, and clarifying that SSB consumption should be limited.

## Food Sources of Saturated Fat

Since the first edition of the *Dietary Guidelines* was published in 1980, each subsequent edition has consistently recommended limiting consumption of saturated fat. This is the first Committee to formally evaluate food-level comparisons of foods with higher or lower levels of saturated fat to inform potential guidance for which foods across the dietary pattern could be increased when saturated fat-containing foods are reduced, for cardiovascular disease risk reduction.

The Committee's findings reinforce the recommendations in the current (2020-2025) *Dietary Guidelines* to limit total saturated fat intake to less than 10 percent of calories per day starting at age 2 by replacing it with unsaturated fat, particularly polyunsaturated fats. Evidence indicates that when reducing butter, processed and unprocessed red meat, and dairy, substitution or replacement with a wide range of plant-based food sources, including plant-based protein foods (e.g., beans, peas, and lentils), whole grains, vegetables, or monounsaturated fatty acid (MUFA)- and PUFA-rich vegetable oils and spreads, is associated with cardiovascular disease risk reduction. The general lack of cardiovascular disease benefit observed for substitution or replacement within animal-based saturated fat foods, despite potential differences in saturated fat content, further highlights the importance of evaluating dietary exposures at the food level. Consuming foods lower in saturated fat may be related to decreased cardiovascular disease risk through their lower saturated fat content, as well as the other nutritional exposures within these foods, such as beneficial dietary factors (e.g., fiber, antioxidants). These findings support recommendations to replace saturated fat-containing foods with plant sources rich in MUFA, PUFA, and fiber, rather than other

animal sources of saturated fat, for reduction in CVD risk. Further, the Committee's systematic review findings support replacement of plant sources higher in saturated fat, such as coconut oil, cocoa butter, and palm oil, with vegetable oils higher in unsaturated fats.

## Dietary Practices and Behaviors in Birth Through Childhood

Childhood represents a critical window during which nutrition has a profound influence on cognitive and physical development; it also represents a focal period for the development and socialization of eating behaviors. The family is a first and fundamental context in which the development of eating behaviors occurs. The Committee examined relationships between the timing and types of foods and beverages introduced during the complementary feeding period, and of caregiver feeding styles and practices, with various outcomes.

### Complementary Feeding and Feeding Styles and Practices During Childhood

Complementary feeding is a period of rapid nutritional transition when children are introduced to a variety of foods, flavors, and textures, and eating routines that reflect the diets of their family, culture, and environment. Complementary feeding begins around age 6 months and extends to 24 months, a period during which complementary foods and beverages (CFB) take on an increasingly important role in sustaining adequate growth and development. In addition to the timing of introduction, the types and amounts of CFB are important factors that may influence dietary intake, nutritional status, growth and body composition, and future health outcomes. Fruits, vegetables, and grains are complementary food options between ages 6 and 24 months that are not associated with unfavorable outcomes related to growth or risk of obesity, based on the Committee's systematic reviews. Conclusions for food groups beyond fruits, vegetables, and grains for these outcomes are not possible at this time.

Children's food acceptance and preferences are largely learned through experiences around eating, which emphasizes that *how* children are fed may be as important as *what* they are fed. The Committee's systematic reviews on relationships between caregiver feeding styles and practices and child food acceptance, dietary intake, and outcomes related to growth highlight the potentially supportive role of structured feeding practices in promoting young children's acceptance and consumption of healthful foods aligned with the *Dietary Guidelines*. Structured feeding practices, including repeated exposure—a practice that shows robust evidence of promoting children's acceptance of fruits and vegetables during the first 6 years of life—may support children's intakes of both fruits and vegetables by organizing children's physical and social eating environments: making readily accepted foods generally available to children (e.g., fruits), including vegetables in eating routines (e.g., providing vegetables at snacks), providing guided choices that include vegetables, and modeling enjoyment of eating vegetables. The lack of studies regarding relationships between other types of feeding practices and outcomes related to eating behavior and dietary intakes highlights notable scientific gaps in how to feed children for promoting healthy dietary patterns aligned with the *Dietary Guidelines*.

# Strategies for Individuals and Families Related to Diet Quality and Weight Management

The Committee considered specific evidence-based strategies that individuals can use to follow a healthy dietary pattern with appropriate calories to achieve or maintain a healthy weight. These include strategies related to frequency of meals and/or snacking as well as portion size. The Committee also explored culturally responsive interventions to improve diet through an evidence scan.

## Frequency of Meals and/or Snacking

The Committee examined evidence across the lifespan on relationships between frequency of meals and/or snacking and consuming a dietary pattern that is better aligned with the *Dietary Guidelines*; energy intake; and growth, body composition, and risk of obesity. The Committee's work evaluated scientific literature on occasion-based measures such as meals (e.g., breakfast), snacking, frequency of meals, and number of eating occasions as defined by the studies.

Among children and adolescents, regular breakfast consumption and a higher number of eating occasions may be associated with favorable outcomes related to growth, body composition, and/or lower risk of obesity; frequency of daily snacking among children may not be associated with outcomes related to growth, body composition, and/or risk of obesity; and meal frequency/skipping among children may not be associated with risk of overweight or obesity. Among adults and older adults, breakfast skipping, overall snacking, and number of eating occasions may not be associated with outcomes related to body composition, body weight, and/or risk of obesity, but after dinner/evening snacking may be associated with less favorable outcomes related to body composition and risk of obesity. Adequate evidence was not available for any life stage on the relationship between frequency of meals and/or snacking and energy intake, nor for consuming a dietary pattern that is better aligned with the *Dietary Guidelines*, highlighting the need for additional research on these topics. Similarly, not enough evidence was available to assess the relationship between frequency of meals and/or snacking and gestational weight gain or postpartum weight change.

## Portion Size

To better understand how portion sizes influence selection and consumption of food, the Committee examined evidence on relationships between food and beverage portion sizes and energy intake and growth, body composition, and risk of obesity. The Committee prioritized integrating the concepts of food type, portion size, and energy density in its review of the evidence to identify specific evidence-based strategies that individuals can use to follow a healthy dietary pattern with appropriate calories to achieve or maintain a healthy weight.

Evidence indicated that large portions, particularly of energy-dense foods and beverages, promote energy intake among both adults and children. Portion size effects have been observed across a variety of different types of foods, participant characteristics, and packaging types and sizes, suggesting that larger portion sizes may have universal effects to promote food consumption. The implications of portion size for

energy intake, however, may depend on food type. Among adults and older adults, portion size and energy density have independent and additive effects on daily energy intake. Among children, larger portion sizes of low energy-dense foods such as vegetables and fruits promote consumption of those foods without appreciable effects on daily energy intake. Strategies to promote portion control of energy-dense foods include selection of smaller package sizes and use of pre-portioned meals and snacks for foods and beverages. Although the body of evidence considered demonstrates robust influences of food and beverage portion size on intake among children and adults, a lack of evidence exists on the relationship between portion size and energy intake in young children, adolescents, and individuals during pregnancy and postpartum. A lack of evidence also exists on the role of portion size in achieving or maintaining a healthy weight and growth, body composition, and risk of obesity overall.

## Culturally Responsive Interventions to Improve Diet

Dietary behaviors result from a complex interplay of psychological, sociological, economic, and sensory factors, all of which are influenced by culture. Culturally responsive (also referred to as culturally tailored) approaches and interventions have garnered significant interest based on their promise for improving equitable access to healthcare and nutrition services and in supporting health behavior change. Culturally responsive dietary interventions are designed to align with specific cultural practices, beliefs, and preferences of the target population, with the aim of improving the quality of their diet and health outcomes. The U.S. population has become more racially and ethnically diverse during the past decade, highlighting the need to ensure that the *Dietary Guidelines* are representative of the country's diverse populations and that community implementation appropriately reflects cultural preferences.

The Committee conducted an evidence scan to better understand the breadth and depth of the diverse body of evidence on culturally responsive dietary intervention studies, as such studies emphasize how cultural considerations have been incorporated into interventions to address the needs of a given population and explore the impact of culture on dietary intake and health. The Committee integrated concepts from 2 frameworks to provide a theoretical and practical foundation for the Committee to classify the intervention components within the evidence scan and interpret the scan's results within the broader context of the literature. This evidence scan also explored intervention opportunities, emphasizing the potential for social, economic, and environmental strategies to improve overall diet and overall diet quality among populations disproportionately affected by health disparities. The results demonstrated that many diverse culturally responsive dietary interventions have been conducted in the United States and Canada to improve diet and energy intake as well as various health outcomes such as growth, body composition, risk of obesity, and risk of cardiovascular disease and type 2 diabetes. The findings may provide insights on the importance of allowing for flexibilities around the Healthy U.S.-Style Dietary Pattern to be more culturally responsive, and could also serve as a springboard for future, more targeted systematic reviews that assess the effectiveness of the interventions on outcomes of interest.

## Food Pattern Modeling

Food pattern modeling is a methodology used to illustrate how changes to the amounts or types of foods and beverages in a dietary pattern might affect meeting nutrient needs. These analyses are used to develop quantitative dietary patterns that reflect health-promoting patterns identified in systematic reviews to meet energy and nutrient needs. The Committee used food pattern modeling to inform, with consideration of each life stage, if changes should be made to the 3 USDA Dietary Patterns (Healthy U.S.-Style, Healthy Mediterranean-Style, and/or Healthy Vegetarian). The Committee also considered if additional Dietary Patterns should be developed/proposed based on the review of evidence.

## Nutrient Profile Development

An initial step in the Committee's food pattern modeling process was development of nutrient profiles to use in all food pattern modeling analyses. Nutrient profiles are calculated for food groups and subgroups, and are based on the weighted average of nutrient-dense forms of foods considering a range of foods and beverages reported by individuals in the United States. Nutrient-dense versions of foods and beverages were used to calculate nutrient profiles in previous food pattern modeling analyses. This Committee examined an alternative approach that considered which, if any, foods and beverages lower in nutrient density should contribute toward the calculations of nutrient profiles. The nutrient profiles were modestly refined by excluding a limited list of foods and beverages lower in nutrient density with the intent to model nutrient-dense foods and beverages that better align as part of a healthy dietary pattern.

The Committee also examined whether nutrient profiles based on dietary intakes of the total U.S. population ages 1 and older are generalizable to individual population groups classified by race, Hispanic origin, and socioeconomic position using income measures related to federal assistance program income eligibility. Separate nutrient profiles were calculated based on each group's proportional intakes of foods and beverages, which represented the variation in dietary intakes among these population groups. The evaluation of nutrient profiles specific to individual population groups demonstrated some differences in the proportions of foods and beverages that contributed to the calculation of nutrient profiles, but had limited differences on the overall macronutrient and micronutrient composition of the nutrient profiles. No changes were made to the nutrient profiles used in subsequent food pattern modeling analyses based on this evaluation. The individual population group nutrient profiles were used, however, as part of the final synthesis to evaluate proposed food pattern(s) against nutritional goals.

## Food Group and Subgroup Analysis

After developing the nutrient profile to use in all food pattern modeling analyses, the Committee explored how shifts in quantities of food groups and subgroups, mostly tested within the 2020 Healthy U.S.-Style Dietary Pattern (HUSS), could have implications for nutrient adequacy. This helped the Committee determine if modifications or flexibilities should be made to the existing patterns, or if new dietary pattern variations should be developed. Ultimately, the Committee did not propose the addition of an entirely new dietary pattern. It did, however, identify supporting evidence from food pattern modeling analyses to explore potential modifications to the 2020 HUSS that simultaneously modify at certain calorie

levels: (1) Vegetable subgroups, specifically to increase Beans, Peas, and Lentils and decrease Starchy Vegetables while keeping Total Vegetables in the same quantities; and (2) reduce Total Protein Foods by reducing Meat, Poultry and Eggs. The Committee determined that based on the evidence reviewed, no scientific justification existed to recommend modifications for the quantities of other food groups or subgroups in any pattern. The Committee also recommended removal of the line for “Limits on Calories for Other Uses” that appears in the existing USDA Dietary Patterns for ages 2 years and older. This line represented a quantitative estimate of calories remaining after all other foods and beverages in the pattern are consumed in their most nutrient-dense forms. According to the current (2020-2025) *Dietary Guidelines*, these calories can be used for added sugars, saturated fat, and/or alcohol, or to eat more than the recommended amount of food in a food group. Given inherent variability in the energy estimates of nutrient-dense foods and beverages and the poor diet quality in the United States, presenting a quantified number of additional calories was not considered prudent and may be misleading because calories for other uses may not be available.

The Committee’s food pattern modeling analyses also demonstrated the unique but varied contributions that each of the food groups and subgroups across the HUSS make to meeting nutritional goals, underscoring the necessity of dietary variety and highlighting potential implications of excluding dietary components without thoughtful replacement. Findings from the Committee’s food pattern modeling analyses informed its development of a modified 2020 HUSS that continues to meet nutritional goals across life stages and age and sex groups, with few exceptions. The modified 2020 HUSS was then evaluated for potential refinement using diet simulations.

## Diet Simulations

The Committee used diet simulations to evaluate the capacity of a wide range of foods and beverages consumed in the United States, including foods of lower nutrient density, to meet the modified 2020 HUSS. The addition of this systems modeling approach is the first use in the *Dietary Guidelines* development process and is also responsive to recommendations from a National Academies report. These data allowed the Committee to examine and consider refinement of the modified 2020 HUSS to ensure that it is inclusive of a broader range of dietary intakes. Given time constraints and the novelty of this approach, the Committee needed to limit the number of groups for whom the diet simulations would test the proposed pattern. The Committee unanimously decided to prioritize American Indian and Alaska Native populations in the pilot method to identify foods and beverages to use in a separate set of simulation analyses, with the recommendation that future work in this area be expanded to represent additional U.S. population groups.

Results from the Committee’s analyses indicate that nutrient requirements can generally be met with the modified 2020 HUSS dietary pattern when considering a wide variety of foods consumed in the United States and included in select American Indian and Alaska Native diets. Therefore, the Committee did not further refine the modified 2020 HUSS, but emphasized that recommended food group amounts should be met predominantly with foods and beverages lower in added sugars, saturated fat, and sodium. It is notable, however, that recommended limits for sodium intake were exceeded even when foods lower in nutrient density were excluded from the simulations. This suggests that decreasing sodium to levels

expected to reduce chronic disease risk is unlikely without considerable efforts to decrease sodium in the U.S. food supply.

## Overarching Advice to the Departments

Several key themes emerged throughout the Committee's work. First, the value of using multiple sources of evidence to inform comprehensive, actionable recommendations. The Committee leveraged and triangulated diverse evidence sources and methodological approaches that built iteratively upon one another—including findings from data analysis, systematic reviews, and food pattern modeling—to develop comprehensive and actionable advice for HHS and USDA in developing the *Dietary Guidelines for Americans, 2025-2030*. Second, the importance of considering—across approaches to examine evidence—select sociodemographic and economic indicators that are central to applying a health equity lens. Including these indicators allowed the Committee to examine their implications for recommending dietary patterns that promote health equity, specifically understanding how they impact dietary intake; how and if different populations are represented in the existing literature to ensure generalizability; and the potential of existing and revised dietary patterns to meet cultural, regional, social, and religious needs. Third, the expansion of the scope of the evidence reviewed to examine not only recommended amounts and types of foods but also strategies to effectively promote healthy dietary patterns across the life course; this recognizes that achieving a healthy dietary pattern involves a combination of dietary/feeding strategies and behavioral modifications. The Committee evaluated the effectiveness of strategies, including the frequency of meals/snacks, breakfast consumption, portion size, and child feeding styles and practices, for achieving a healthy dietary pattern and lower risk of obesity across the lifespan. The Committee also emphasized the importance of flexibility and inclusion in dietary recommendations—which is increasingly recognized as essential for promoting adherence to healthy eating patterns and improving overall health outcomes—as a core element across the 3 themes.

With regard to USDA Dietary Patterns, the Committee did not recommend modifications to the 2020 HUSS for young children ages 12 through 23 months who are no longer receiving human milk or infant formula. For individuals ages 2 years and older, results from the Committee's analyses indicate that nutrient requirements can generally be met with the modified 2020 HUSS dietary pattern when considering a wide variety of foods consumed in the United States and included in select American Indian and Alaska Native diets. Moreover, systematic reviews demonstrate that the 3 current USDA Dietary Patterns, as well as other healthy dietary patterns, have similar core elements. These core elements are retained in the *Eat Healthy Your Way* Dietary Pattern, which is the Committee's proposed dietary pattern—a single inclusive, flexible, dietary pattern that incorporates scientific evidence accumulated across many years and builds on the work of prior Committees. The proposed modifications are based on the Committee's systematic reviews and food pattern modeling analyses, informed by data analysis, supported by diet simulations, and reflective of the Committee's review of scientific evidence through a health equity lens. Key tenets include flexibility and inclusivity, acknowledging that all U.S. individuals with their diverse backgrounds and foodways can achieve the goal of eating a healthy dietary pattern by following the proposed dietary pattern.

The Committee recommends that the proposed *Eat Healthy Your Way Dietary Pattern* emphasizes dietary intakes of beans, peas, and lentils while reducing intakes of red and processed meats, as supported by systematic reviews as well as food pattern modeling analyses indicating that nutrient goals are generally met with such a shift from the 2020 HUSS to include more plant-based Protein Foods. The Committee also recommends moving Beans, Peas, and Lentils as a subgroup of the Vegetables Food Group to a subgroup of the Protein Foods Group to align with evidence to encourage plant sources of Protein Foods. The Committee also proposes reorganizing the order of the Protein Foods Group to list Beans, Peas, and Lentils first, followed by Nuts, Seeds, and Soy products, then Seafood, and finally Meats, Poultry, and Eggs. The Committee also recommends removing “Limits on Calories for Other Uses” from the quantitative pattern because variability in calorie content exists across the many food and beverage options that may be used to achieve the pattern’s food group and subgroup recommendations, meaning that it is possible that no calories may remain for other uses.

The Committee also reviewed the 4 overarching Guidelines in the *Dietary Guidelines for Americans*, 2020-2025 and provides advice to the Departments regarding these 4 Guidelines for the 2025-2030 edition. The updates reflect the Committee’s emphasis on how and why individuals eat what they do and its commitment to building flexibilities into an inclusive framework such that the *Dietary Guidelines* can better meet individuals where they are and to meet the varied budgetary, cultural, and personal preferences of people living in the United States. Details of these suggested updates are provided in [Part E. Chapter 1: Overarching Advice to the Departments.](#)

The *Eat Healthy Your Way* Dietary Pattern proposes modifications and flexibilities to the modeled dietary pattern, which ensures food group recommendations meet nutrient requirements, with few exceptions. These modifications do not necessarily reflect changes needed to bring current dietary intakes at the individual or population levels into alignment with recommendations. Therefore, the Committee recommends that future Committees be composed of expertise in the disciplines of health equity, nutrition science, and behavioral and implementation sciences to assist HHS and USDA in their efforts to successfully implement dietary guidance for all Americans, regardless of their age, sex, race, ethnicity, and/or socioeconomic position, to narrow the gap between scientifically robust dietary guidance and actual dietary consumption by the U.S. population.

# Part B. Chapter 1: Introduction

More than half of all U.S. adults have one or more preventable chronic conditions, many of which are related to unhealthy dietary intakes.<sup>1</sup> Food insecurity is present in 18 million U.S. households, including 3.2 million U.S. households with children.<sup>2</sup> The likelihood of having a chronic disease increases with increasing degree of food insecurity, and both disproportionately affect different population groups.<sup>3</sup> Availability and access to nutritious foods and beverages that support healthy living is important for all people in the United States. Up-to-date nutrition advice in the *Dietary Guidelines for Americans* can help improve the health of individuals in the United States by encouraging food and beverage choices that are affordable, enjoyable, promote health and sustainability, and help prevent chronic diseases.

By law (Public Law 101-445, Title III, 7 U.S.C. 5301 et seq.), the *Dietary Guidelines for Americans* is published by the federal government every 5 years. Since the 1985 edition, the U.S. Departments of Health and Human Services (HHS) and Agriculture (USDA) have fulfilled this requirement by establishing a Dietary Guidelines Advisory Committee (Committee) of nationally recognized experts in the field of nutrition and health to review the scientific and medical knowledge current at the time.

The 2025 Dietary Guidelines Advisory Committee was established for the single, time-limited task to examine the evidence on specific nutrition and public health topics, and for providing independent, science-based advice and recommendations to the federal government. The Committee considered all the conclusion statements generated from its scientific reviews to develop overarching advice for the Secretaries of Health and Human Services and Agriculture for use as HHS and USDA develop the *Dietary Guidelines for Americans, 2025–2030*.

## An Evolving Focus for Dietary Guidance

To meet the nutrient needs of the U.S. population, the *Dietary Guidelines for Americans, 2020–2025* promotes consumption of a variety of nutrient-dense foods and beverages from food groups and subgroups in USDA Dietary Patterns. Each edition of the *Dietary Guidelines* builds on the previous edition, with scientific justification for changes informed by the Committee's scientific report, along with input from federal agencies and the public. Early editions focused on healthy members of the public but more recent editions, recognizing the growing prevalence of diet-related chronic diseases such as cardiovascular disease, type 2 diabetes, obesity, and some forms of cancer, have also addressed individuals with increased risk of chronic disease. More recent editions have also focused on dietary patterns, or combinations of foods eaten over time, with more quantitative information and refinements in guidance.

The 2025 Committee expanded the scope of work of the 2020 Committee to: (1) explore variability in intakes and the range of possible healthy diets; (2) refine patterns based on special considerations by life stage, if and where evidence is available; (3) provide a framework intended to be customized to individual needs and preferences; and (4) conduct work through a health equity lens to help HHS and USDA develop *Dietary Guidelines* that can support all people in the U.S. across racial, ethnic, socioeconomic, and cultural backgrounds in achieving a healthy dietary pattern. This Committee leveraged methodological refinements to those used in prior Committees; introduced new analytical tools, such as a new risk of bias tool for

observational studies; and expanded transparency around its activities, including providing updated information for dedicated websites where all the protocols were posted for comment.

Several key themes emerged throughout the Committee's work. First, the value of leveraging multiple sources of evidence to inform comprehensive, actionable recommendations. Second, the importance of considering select sociodemographic and economic indicators across approaches to examine evidence, which is central to applying a health equity lens. Third, the expansion of the scope of the evidence reviewed to examine not only recommended amounts and types of foods but also strategies to effectively promote healthy dietary patterns across the life course; this recognizes that achieving a healthy dietary pattern involves a combination of dietary/feeding strategies and behavioral modifications. The Committee also emphasized the importance of flexibility and inclusion in dietary recommendations—which is increasingly recognized as essential for promoting adherence to healthy eating patterns and improving overall health outcomes—as a core element across the 3 themes.

## Health Equity

This Committee was the first to be charged to and employ a comprehensive, systematic approach to incorporate a health equity lens throughout its work. Although prior Committees incorporated basic demographic factors such as age, race, and/or ethnicity into their reviews of the science, this Committee considered additional variables representing the social determinants of health (such as socioeconomic position) as it reviewed, interpreted, and synthesized evidence across data analysis, systematic review, and food pattern modeling. The importance of reviewing evidence through a health equity lens and considering factors like economic stability cannot be overstated. Income and employment have a significant impact on dietary choices through various factors, including time constraints, financial resources, and workplace food environments. Economic constraints can limit access to healthier food options, pushing individuals toward cheaper, less nutritious alternatives.<sup>4,5</sup>

Including these select sociodemographic and economic indicators allowed the Committee to examine their implications for recommending dietary patterns that promote health equity. Specifically, the inclusion of such indicators allowed the Committee to understand how they impact dietary risk, how and if different populations are represented in the existing literature to ensure generalizability, and the potential of existing and revised dietary patterns to meet cultural, regional, social, and religious needs. This approach is consistent with federal program and policy initiatives to improve health, improve food and nutrition security, and promote equity. The effort to center health equity builds on previous editions of the *Dietary Guidelines* as they continue to refine population-based dietary recommendations across life stages, reflecting changing dietary needs over the life course. Integrating social and structural considerations that affect the relationship between diet and health, such as influences of varying environments, financial circumstances, and cultural backgrounds, supports an inclusive approach to dietary guidance. While such evidence is still accumulating, integrating the available data can inform development of dietary guidance that is relevant to diverse population groups.

## Flexibility and Inclusion

This Committee used food pattern modeling (FPM) to build on the current *Dietary Guidelines* to explore what modifications and flexibilities can be introduced in and between food groups in current USDA Dietary Patterns to enhance dietary guidance for all individuals. The integration of data analysis, systematic reviews, and FPM through a health equity lens allowed the Committee to explore different combinations of foods within the individual food groups and subgroups to maximize the capacity of the healthy dietary patterns to address individual differences while optimizing health. The Committee further built on this work by conducting novel diet simulations that can test the capacity of a wide range of foods and beverages to meet a given dietary pattern. The addition of this systems science approach allowed the Committee to test dietary patterns to ensure the final pattern recommended to the Departments is inclusive of a broader range of dietary intakes and considers health equity. Separately, a pilot was conducted to simulate foods and beverages identified by cultural experts as included in select American Indian and Alaska Native diets, the first time any country has conducted simulations to evaluate national dietary guidelines using only foods identified for specific cultural groups.

The importance of flexibility and inclusion in dietary recommendations is increasingly recognized as essential for promoting adherence to healthy eating patterns and improving overall health outcomes among a diverse population. Flexibility in dietary guidelines allows individuals to tailor their eating habits to fit personal preferences, cultural practices, and lifestyle needs, which can enhance motivation and compliance with dietary recommendations.<sup>6,7</sup> For instance, dietary guidelines that incorporate a variety of food choices rather than rigid restrictions can accommodate diverse dietary patterns, making it easier for individuals to integrate healthy foods into their daily lives.<sup>8</sup> Inclusion is equally vital, as it ensures that dietary recommendations are accessible and relevant to a broad audience, including those with specific health conditions, cultural backgrounds, and socioeconomic positions. This approach recognizes that individuals have unique dietary needs and preferences, which can significantly influence their ability to follow dietary guidelines. By allowing for flexibility in food choices, such as incorporating preferred foods in moderation, dietary recommendations can be more effective in promoting long-term behavior change. For example, studies have shown that individuals who follow more flexible dietary patterns tend to have higher adherence to recommended nutrient intakes and lower risks of diet-related diseases.<sup>9</sup> By recognizing the diverse needs of the population and allowing for personalized dietary choices, health professionals can foster a more inclusive approach to nutrition that supports long-term health and well-being. Ultimately, this work allowed the Committee to develop advice to the Departments recommending a single flexible, healthy dietary pattern, designed to meet people where they are and to meet the varied budgetary, cultural, and personal preferences of people living in the United States.

## The How of Healthy Eating

This Committee emphasized the importance of extending its evidence review beyond *what* a healthy dietary pattern is to *how* to support consumption of a healthy dietary pattern across the lifespan. The Committee gave consideration not only to recommendations regarding the amounts and types of foods to consume but also evaluated the effectiveness of strategies—including frequency of meals/snacks, breakfast consumption, portion size, and child feeding styles and practices—for achieving a healthy dietary

pattern and lower risk of obesity across the lifespan. Evidence indicates that achieving a healthy dietary pattern involves a combination of dietary/feeding strategies and behavioral modifications. For example, the Committee considered the timing and types of complementary foods, use of responsive feeding practices, and use of structure in guiding children's eating behaviors. During infancy the introduction of complementary foods is a critical milestone in a child's development, influencing not only one's nutritional status but also future eating behaviors and food preferences. During early childhood, child feeding styles and practices have been shown to influence children's food intake, dietary habits, and overall health outcomes. This helped the Committee consider guidance that can be provided to parents and caregivers to support them in both *what* to feed and *how* to feed.

Eating behaviors are important determinants of dietary intake, and some can be investigated as strategies to enhance health. Understanding how these behaviors influence food intake is critical for identifying effective strategies for improving dietary quality and weight management in childhood and adulthood. For example, understanding how portion sizes impact selection and consumption of food can inform recommendations for weight control and obesity prevention.

Lastly, recognizing that nutrient-dense foods that align with the dietary patterns recommended by the *Dietary Guidelines for Americans* are present in all cultural diets, the Committee conducted a novel evidence scan of culturally responsive approaches and interventions. This evidence scan on culturally tailored interventions may provide insights as to the importance of allowing for flexibilities around the Healthy U.S.-Style Dietary Pattern to be more culturally responsive, supporting the development of the Committee's flexible, healthy dietary pattern.

## From the 2025 Dietary Guidelines Advisory Committee Report to the *Dietary Guidelines for Americans*

A major goal of the 2025 Committee is to summarize and synthesize the evidence to support HHS and USDA in developing the *Dietary Guidelines for Americans, 2025-2030* recommendations for meeting nutrient requirements and promoting health for all Americans. The *Dietary Guidelines* is developed and written for a professional audience including policymakers, healthcare providers, nutrition educators, and federal nutrition program operators. The federal government uses the *Dietary Guidelines for Americans* as the basis of its food and nutrition assistance programs—in which about 1 in 4 people in the United States participate during a given year—and its nutrition education efforts, as well as decisions about national health objectives, and for providing information on diet and health to the general public.<sup>10</sup> For example, the National School Lunch Program incorporates the *Dietary Guidelines* in menu planning, the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) applies the *Dietary Guidelines* in its program and educational materials, and the Healthy People objectives for the nation include objectives based on the *Dietary Guidelines*. The *Dietary Guidelines* also provides a critical framework for state and local health promotion and disease prevention initiatives.

## A Guide to the Committee's Report

This report is organized into 5 major sections and several appendixes. Part A provides an Executive Summary of the Report. Part B sets the stage for the report (in this introductory chapter) and discusses the Committee's use of a health equity lens throughout its review of the evidence. Part C describes the methodology the Committee used to conduct its work and review the evidence on diet and health. Part D provides the results of the Committee's review of the evidence using data analysis, systematic review, and food pattern modeling. Part E presents the Committee's overarching advice to the Departments, as well as recommendations of topics for the nutrition and public health community to consider, including research recommendations. The report's appendices (Part F) include a glossary and list of abbreviations; a summary of the process used to collect public comments; biographical sketches of Committee members; a list of Subcommittee and Working Group members; and acknowledgements.

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# Part B. Chapter 2: Health Equity and Nutrition

## Introduction

All people in the United States deserve equitable access to information and guidance that supports them in achieving a healthy dietary pattern. Ensuring that everyone has the resources and knowledge needed to make informed choices about nutrition is essential for promoting health and reducing disparities across diverse communities. The 2025 Dietary Guidelines Advisory Committee (Committee) was tasked to apply a health equity lens to its review of the evidence on relationships between diet and health across all life stages. A primary goal of centering health equity in this scientific review was to help the U.S. Departments of Health and Human Services (HHS) and Agriculture (USDA) develop *Dietary Guidelines* that can support U.S. individuals across racial, ethnic, socioeconomic, and cultural backgrounds in achieving a healthy dietary pattern. Therefore, in the criteria HHS and USDA used to select the Committee, expertise related to health equity as well as a diverse membership reflective of the racial, ethnic, gender, and geographic diversity within the United States were specifically considered to achieve this goal.<sup>1</sup> Additional information about how the Committee was selected can be found in [Part C. Methodology](#).

The Committee's health equity lens is consistent with federal program and policy initiatives to improve health, improve food and nutrition security, and promote equity, including the National Strategy on Hunger, Nutrition, and Health and the National Strategy on Gender Equity and Equality.<sup>2,3</sup> In addition, USDA released an Equity Action Plan in April 2022 (further updated in 2023) pursuant to Executive Order 13985,<sup>4,5</sup> "Advancing Racial Equity and Support for Underserved Communities Through the Federal Government"; and the HHS Strategic Plan for fiscal years 2022-2026 included a definition of equity and outlined actions "to shift its culture, resources, and approaches to institutionalize and sustain a focus on equity over time."<sup>6</sup> Furthermore, the Committee's efforts to center equity build on previous editions of the *Dietary Guidelines* as it continues to refine population-based dietary recommendations across life stages, reflecting changing dietary needs over the lifespan. Integrating health equity considerations, such as influences of varying environments, financial circumstances, and cultural backgrounds on diet and health relationships, supports an inclusive approach to dietary guidance. While such evidence is still accumulating, integrating the available data can inform development of dietary guidance that is relevant to diverse population groups.

This chapter provides a broad overview of how the Committee incorporated health equity throughout its work. Information about how the Committee incorporated health equity considerations into each of the 3 approaches it used to examine evidence—data analysis, systematic reviews, and food pattern modeling—can be found in [Part C. Methodology](#), and in [Part D. Evidence on Diet and Health](#). The integration of these three approaches to develop a recommended Dietary Pattern that considers variation in dietary intakes and accommodates flexibility can be found in [Part E. Chapter 1: Overarching Advice to the Departments](#).

In addition, green callout boxes with the health equity icon ([Box B.2.1](#)) are used throughout this report to highlight examples of where health equity considerations strongly factored into the Committee's

conclusions, reflecting the concerted approach the Committee took to incorporating health equity into the review of the science. Such examples include but are not limited to a health equity-focused systematic review on dietary patterns and cardiovascular disease (see [Part D. Chapter 2: Dietary Patterns](#)), an evidence scan on culturally tailored interventions (see [Part D. Chapter 8: Culturally Responsive Interventions to Improve Diet](#)), the development of nutrient profiles that considered dietary intakes across population groups and informed food pattern modeling (FPM) analyses (see [Part D. Chapter 9: Nutrient Profile Development](#)), and the diet simulations analyses that included simulations of foods included in select American Indian and Alaska Native foodways (see [Part C. Methodology](#) and [Part D. Chapter 11: Diet Simulations](#)).



### Box B.2.1: Health Equity Callout Boxes

Look for green callout boxes with the health equity icon throughout the report to learn more about how the Committee incorporated health equity throughout its work.

## Defining Health Equity

The Committee understands that choosing a healthy dietary pattern is a complex process influenced by structural, economic, social, cultural, and biological factors that are often outside of an individual's control. Therefore, centering equity means providing guidance to promote healthy dietary behaviors and patterns for individuals, families, and organizations across different environments and contexts including those where constraints exist to choosing healthy foods.<sup>7-9</sup> With this perspective in mind, and after considering other health equity definitions, concepts, and frameworks—such as those from the White House Health Equity Task Force, the Centers for Disease Control and Prevention (CDC), and USDA—the Committee used its collective health equity expertise to adapt those examples in developing its own definition of health equity.

The Committee defined health equity as the state in which everyone has a fair and just opportunity to attain their highest level of health. This includes the consistent and systematic treatment of all individuals in a fair, just, and impartial manner, including individuals who belong to communities that have often been denied such treatment, such as Black, Hispanic or Latino, Indigenous and Native American, Asian American, Native Hawaiian and Pacific Islander persons, and other persons of color; members of religious minorities; women and girls; LGBTQIA+ persons; persons with disabilities; persons who live in rural areas; persons who live in United States Territories; persons with stigmatized health conditions; persons otherwise adversely affected by persistent poverty or inequality; and individuals who belong to multiple such communities. This definition is presented in [Box B.2.2](#), along with definitions for other key terms that are often used when discussing health equity.

Health disparities is one such term defined in [Box B.2.2](#). Health disparities is a concept linked to health equity, to acknowledge health differences closely linked with economic, social, and/or environmental

disadvantages.<sup>10</sup> Economic disadvantage in this definition refers to low income or lack of wealth, whereas social disadvantage is a broader concept that includes economic disadvantage as well as one's position or status in life, including race, ethnicity, gender, sexual orientation, and disability, all of which influence how one is treated within a society.<sup>10</sup> Both economic and social disadvantage are strongly linked to avoidable illness, disability, and early death.<sup>10</sup> Environmental disadvantage refers to residing in a neighborhood where there is concentrated poverty and/or the social disadvantages associated with low income.

Pursuing health equity means striving for the highest possible standard of health for all people and giving special attention to the needs of those at greatest risk of poor health, based on social conditions.<sup>4</sup> This requires ongoing societal efforts to:

- address historical and contemporary injustices;
- remove economic, social, and other obstacles to food, food access, health, and health care, such as poverty, discrimination, and their consequences, including powerlessness and lack of access to good jobs with fair pay, quality education and housing, safe environments, and healthcare; and
- eliminate differences in health outcomes.<sup>11-14</sup>



## Box B.2.2: Key Terms

**Health Equity:** The state in which everyone has a fair and just opportunity to attain their highest level of health. This includes the consistent and systematic treatment of all individuals in a fair, just, and impartial manner, including individuals who belong to communities that have often been denied such treatment, such as Black, Hispanic or Latino, Indigenous and Native American, Asian American, Native Hawaiian and Pacific Islander persons, and other persons of color; members of religious minorities; women and girls; LGBTQIA+ persons; persons with disabilities; persons who live in rural areas; persons who live in United States Territories; persons with stigmatized health conditions; persons otherwise adversely affected by persistent poverty or inequality; and individuals who belong to multiple such communities.

**Health Disparities:** A particular type of health difference that is closely linked with economic, social, or environmental disadvantage. Health disparities adversely affect groups of people who have systematically experienced greater social or economic obstacles to health based on their racial or ethnic group, religion, socioeconomic status, gender, age, or mental health; cognitive, sensory, or physical disability; sexual orientation or gender identity; geographic location; or other characteristics historically linked to discrimination or exclusion.

**Social Determinants of Health (SDOH):** Conditions in the environments where 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. These are also known as non-medical drivers of health.

# Incorporating Health Equity Considerations Across the Dietary Guidelines

## Advisory Committee's Work

A key initial step that the Committee took to apply a health equity lens to its work was to form a Health Equity Working Group. The Working Group membership included representatives from each Subcommittee, creating a reinforcing feedback loop that provided continuity of dialogue and consistency in approaches used by each Subcommittee to apply a health equity lens to its work. This arrangement also facilitated opportunities for Subcommittee members to raise questions for the Health Equity Working Group between Committee meetings, as such questions could be routed through the Subcommittee's members who also served on the Working Group. At Committee's meetings, the Health Equity Working Group presented its progress to incorporate health equity throughout the Committee's work and provided suggestions for incorporating health equity considerations into topics discussed during the meetings.

[Figure B.2.1](#) illustrates how the Committee incorporated health equity considerations throughout its work to develop this report. It considered factors such as race, ethnicity, socioeconomic position, and culture as it used the approaches of data analysis, systematic reviews, and food pattern modeling to review the science for diet and health relationships across the lifespan. Throughout the process, the Health Equity Working Group routinely reviewed public comments that provided input on health equity considerations (see [Appendix F-2: Public Comments](#)).

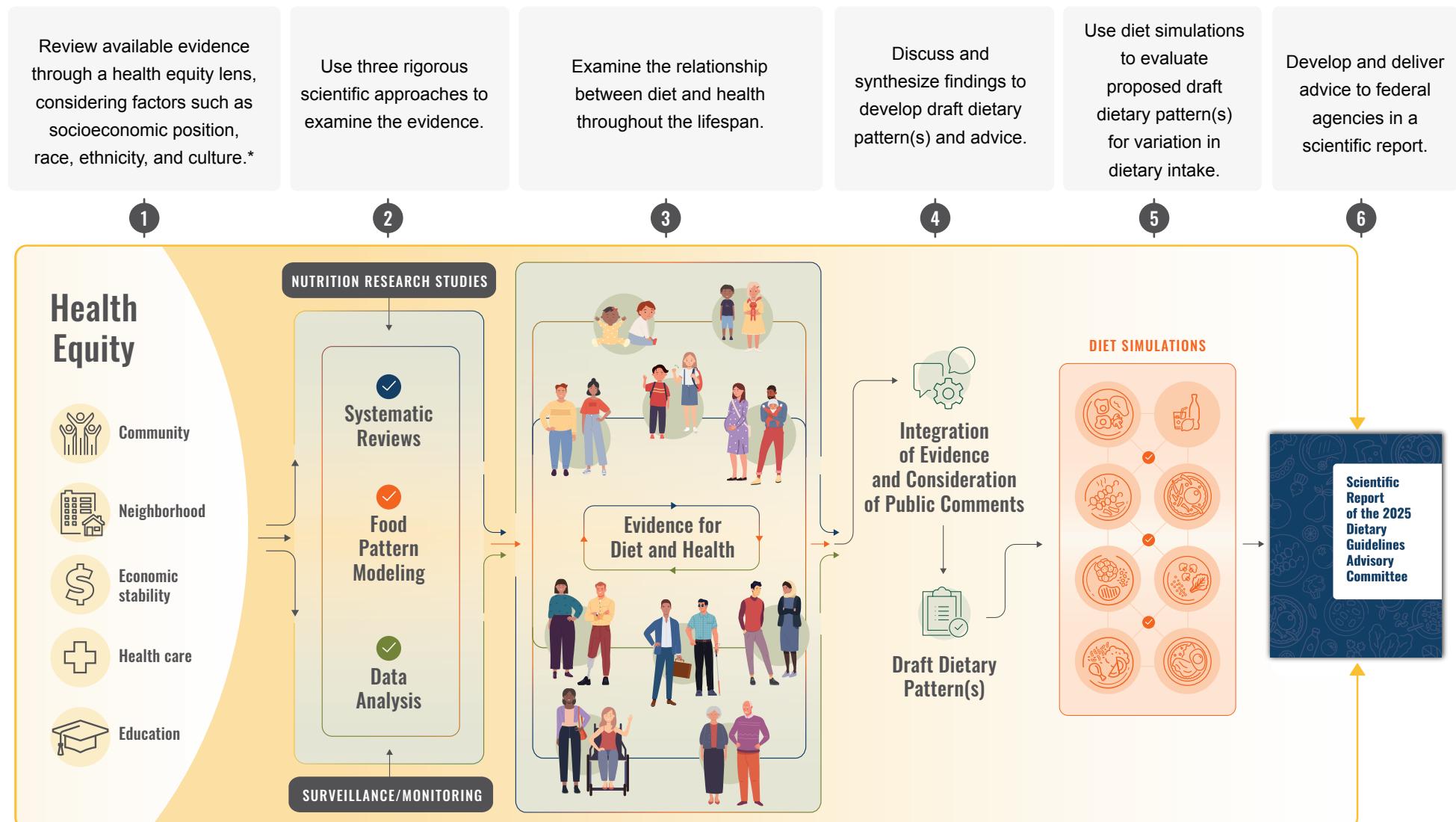
[Figure B.2.2](#) details examples of how the 2025 Committee considered health equity through each approach it used to examine evidence. For example, the Committee was the first to use diet simulation to evaluate dietary patterns, a process further described in [Part C. Methodology](#) and [Part D](#).

**Chapter 11: Diet Simulations.** Briefly, simulations are a mathematical modeling approach used to describe a system process. In addition to food pattern modeling analyses, simulation analyses were used to computationally derive thousands of 7-day diets that met the modified 2020 Healthy U.S.-Style Dietary Pattern considering a broad range of foods and beverages. Furthermore, to evaluate whether the modified 2020 Healthy U.S.-Style Dietary Pattern tested by the Committee is applicable to dietary practices and cultural foodways of populations groups, a pilot was conducted to evaluate separate simulations of foods and beverages identified as integral to or consumed by select American Indian and Alaska Native populations. The Committee prioritized the population groups for the pilot based on public input calling for *Dietary Guidelines* to be inclusive of American Indian and Alaska Native populations by emphasizing traditional foods in the *Dietary Guidelines* and federal programs. The Committee also identified recommendations for future research to integrate health equity considerations and address knowledge gaps with regard to developing dietary guidance that is relevant to diverse population groups (see [Part E](#). **Chapter 2: Future Directions.**)

FIGURE B.2.1

## INCORPORATING HEALTH EQUITY INTO THE DIETARY GUIDELINES ADVISORY COMMITTEE EVIDENCE REVIEW

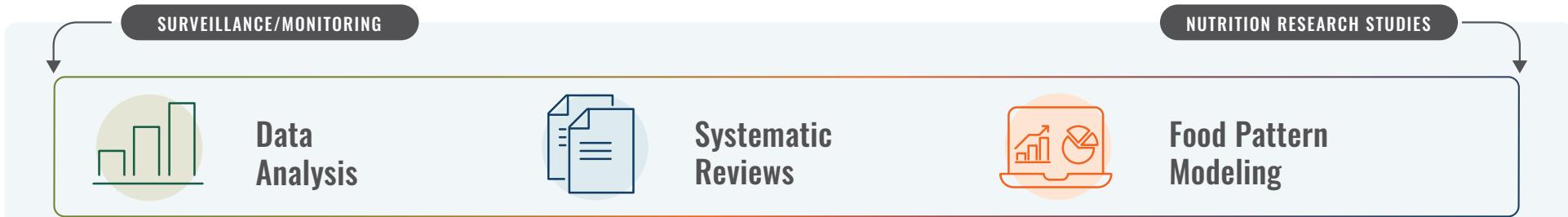
# Incorporating Health Equity into the Dietary Guidelines Advisory Committee Evidence Review



\* Healthy People 2030, U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion.  
[health.gov/healthypeople/objectives-and-data/social-determinants-health](http://health.gov/healthypeople/objectives-and-data/social-determinants-health)

**FIGURE B.2.2****HEALTH EQUITY IS CONSIDERED THROUGHOUT EACH APPROACH TO EVIDENCE REVIEW**

# Health Equity is Considered Throughout Each Approach to Evidence Review



- Identify sociodemographic variables to explore, such as:
  - Life stage
  - Race and/or ethnicity
  - Household food security status
- Analyze data to understand current health and dietary intake among sociodemographic groups.

- Identify variables related to health equity – such as socioeconomic position or race and/or ethnicity.
- Gather and evaluate evidence, including whether health equity variables were considered.
- Draw conclusions and consider whether the evidence and results are generalizable to the U.S. context.

- Evaluate the flexibility of a dietary pattern(s), using food pattern modeling and diet simulations, by analyzing the ability of the pattern(s) to meet nutritional goals when changes are made to the pattern(s) or when various foods and beverages are modeled to represent differing preferences, cultures and traditions.
- Consider if refinement of any dietary pattern(s) is needed to broaden generalizability to cultures and foodways while meeting nutritional goals based on food pattern modeling and diet simulation results.
- Use diet simulations to evaluate proposed dietary pattern(s), considering variability in the selection and consumption of foods and beverages.

**EXAMPLE OF APPROACHES WORKING TOGETHER:**

Utilized nationally representative data to understand cardiovascular health in the U.S. across life stages and sociodemographic groups, such as race and/or ethnicity, household food security, and educational attainment.



Updated a systematic review on the relationship between dietary patterns and cardiovascular disease and confirmed the conclusion statement graded as strong. Given the large body of evidence on this topic, additional analysis allowed for examination of a subset of studies with greater racial and ethnic and socioeconomic diversity, and the findings from this subset were consistent with the overall conclusions.



Used diet simulation to evaluate if a healthy dietary pattern associated with lower risk of cardiovascular disease is flexible enough to be achieved with a variety of foods and beverages, including simulations of diets using foods and beverages included in diets across the U.S. population and pilot simulations for select American Indians and Alaska Native diets.

## Discussion

This Committee was the first to employ a systematic approach to incorporate a health equity lens throughout its work. Although prior Committees incorporated basic demographic factors such as age, race, and ethnicity into their reviews of the science, this Committee considered additional factors and did so in a holistic manner as it reviewed, interpreted, and synthesized evidence across data analysis, systematic reviews, and food pattern modeling. In particular, this Committee considered factors that reflect social determinants of health (SDOH). In doing so, the Committee could interpret the evidence based on both demographic factors (which are considered to be downstream, i.e., more proximal in terms of their influence on behavior) and socioeconomic and political factors (which are considered to be upstream, i.e., broader societal factors that influence the distribution of power and resources). Addressing SDOH is considered key to achieving a just, equitable society.<sup>16-18</sup>

Despite recognizing the importance of incorporating health equity in its review of evidence, the Committee was limited by the extent to which the evidence base considered factors such as race and/or ethnicity, socioeconomic position, and culture in research examining diet and health relationships.<sup>17</sup> The lack of representation of many population groups and/or lack of measurement of demographic variables (meaning that representation of population groups is unknown) led the Committee to realize that its conclusions would be limited to the populations reflected in the evidence base. This particularly was true when studies from outside of the United States were considered in systematic reviews. For example, it is common practice in several European countries to not collect information on race or ethnicity as a result of the General Data Protection Regulation.<sup>19</sup> Also, data analyses were conducted using nationally representative federal datasets, which do not adequately represent all population groups nor consistently incorporate factors such as geographic area or disability status. In addition, the Committee noted substantial concerns with generalizability in the grading process for many questions examined in systematic reviews. Moreover, it also observed a lack of precision in measuring factors of interest; for example, race and/or ethnicity are often measured as a proxy for SDOH, but a more precise measure of the SDOH of interest (e.g., housing security or food security status) could help enhance understanding of relationships between SDOH, diet, and health.<sup>20</sup>

These limitations point to the need for research that is more inclusive of diverse population groups and to the importance of standardized, consistent measuring and reporting on factors that characterize the populations being studied (including the needs of those populations). Sufficient funding as well as authentic engagement of community partners throughout all stages of the research process are critical supports for achieving an inclusive research base. The Committee elaborates on these future research needs, as well as advice for future Committees, in [Part E. Chapter 2: Future Directions](#).

In summary, the Committee applied a health equity focus to all its activities, deliberations, review of the evidence, and consideration of public comments. Its development of research questions and protocols was conducted such that any resulting recommendations would support the health and wellbeing of all people living in the United States. The Committee is confident that despite limitations in the available evidence and datasets, it was able to achieve the overall goal of centering health equity to support all people in the

United States across racial, ethnic, socioeconomic, and cultural backgrounds in achieving a healthy dietary pattern. Pursuit of this goal will be supported by actions across sectors such as government, the food industry, and healthcare, that enable all individuals to consume healthy dietary patterns across the different environments and contexts in which they spend time. The Committee urges such actions to promote health equity, so that everyone has a fair and just opportunity to attain their highest level of health.

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# Part C. Methodology

## Introduction

The 2025 Dietary Guidelines Advisory Committee (Committee) was established to review scientific evidence to be considered by the U.S. Departments of Health and Human Services (HHS) and Agriculture (USDA) as the Departments develop the *Dietary Guidelines for Americans, 2025-2030 (Dietary Guidelines)*. The Committee's work culminated in the development of this report, which summarizes the Committee's review of the science.

This chapter describes the process to identify the scientific questions to be examined by the Committee, the process to appoint members to the Committee, and the methods the Committee used to review scientific evidence and develop this report. These activities are shown as Step 1: Identify Scientific Questions; Step 2: Appoint the Committee; and Step 3: Committee Reviews Scientific Evidence and Develops and Releases Report in [Figure C.1](#)—which provides an overview of the timeline for each activity—and are further described in the sections that follow.

The Committee used 3 separate yet complementary scientific approaches to conduct its review of the science: data analysis, systematic reviews, and food pattern modeling. A description and detailed methodology for each approach is provided in the section on Step 3.

**FIGURE C.1**  
TIMELINE FOR THE 2025 DIETARY GUIDELINES ADVISORY COMMITTEE PROCESS



## Step 1: Identify Scientific Questions

Prior to the 2025 Committee's establishment, HHS and USDA identified scientific questions that the Committee could potentially examine. Proposing scientific questions before establishing the Committee allowed for a deliberative process that incorporated a broad diversity of expertise from both inside and outside the federal government. Other advantages included clearly defining the types of expertise needed

on the Committee, allowing the Committee to focus its efforts on reviewing evidence related to the scientific questions, and ensuring that the Committee's work built on the 2020-2025 edition of the *Dietary Guidelines* and met the needs of federal nutrition policies and programs.

To identify the proposed scientific questions, the Departments conducted a year-long process beginning in 2021 to gather information, receive input from federal experts, and review relevant documents. The scientific questions informed the scope of the Committee's review of the science and its Scientific Report. The criteria HHS and USDA used to identify and prioritize the proposed scientific questions included:

- Relevance: Question is within the scope of the *Dietary Guidelines* and is focused on food-based recommendations for the general public, not clinical guidelines for medical treatment.
- Importance: Question addresses an area of substantial public health concern, uncertainty, and/or knowledge gap.
- Potential Impact to Federal Programs: A high probability exists for the question to provide the scientific foundation for guidance that would inform federal food and nutrition policies and programs.
- Avoiding Duplication: Question is not addressed through existing or planned evidence-based federal guidance (other than the *Dietary Guidelines*).

Research availability was also considered for proposed scientific questions that would be addressed by systematic reviews. Research availability considers whether sufficient evidence exists to conduct a new systematic review or update an existing systematic review. If adequate research was not available, the question was identified as an area needing more research.

HHS and USDA also considered the following items as they applied the criteria:

- Scientific Report of the 2020 Dietary Guidelines Advisory Committee: Questions addressed by the 2020 Committee, particularly those that informed development of the current *Dietary Guidelines*; and future directions documented in the *Scientific Report of the 2020 Dietary Guidelines Advisory Committee*.<sup>1</sup>
- Topics of Public Health Interest: The state of current nutrition science and potential new topics of public health interest.
- Federal Review: Input from federal nutrition scientists and program experts from across the federal government, including the Interagency Committee on Human Nutrition Research (IChNR) and other federal experts.
- Federal Resources: To avoid duplication of efforts, topics addressed by existing or planned federal resources were not included on the list of proposed scientific questions but may be included in the *Dietary Guidelines for Americans, 2025-2030*.

Two examples of topics that were proposed as scientific questions included dietary patterns with varying amounts of ultra-processed foods (UPF) and food sources of saturated fat. UPF was an area of recent nutrition research and a topic of interest among the public and federal nutrition scientists. Food sources of saturated fat was also a topic of public health interest and was recommended in the future directions of the *Scientific Report of the 2020 Dietary Guidelines Advisory Committee*. Both topics met the criteria of relevance, importance, potential impact to federal programs, and avoiding duplication of existing or planned evidence-based federal guidance.

Topics that met the criteria and that were not addressed by federal resources or through separate efforts were included in the list of proposed scientific questions. To provide transparency about existing or planned federal resources that may be used to inform the *Dietary Guidelines for Americans, 2025-2030*, the following list of topics was posted on DietaryGuidelines.gov. These topics were not reviewed by the Committee:

- Healthy food environments (e.g., Community Preventive Service Task Force findings)<sup>2</sup>
- Oral health (e.g., CDC Oral Health)<sup>3</sup>
- Food safety (e.g., FoodSafety.gov)<sup>4</sup>
- Specific nutrient recommendations (Dietary Reference Intakes)<sup>5</sup>
- Human milk, infant formula, and health outcomes (e.g., forthcoming federal systematic reviews)<sup>6</sup>
- Seafood (e.g., FDA/EPA Advice about Eating Fish)<sup>7</sup>
- Eating disorders (e.g., National Institute of Mental Health resources on eating disorder symptoms, risk factors, and treatment)<sup>8</sup>
- Physical activity (Physical Activity Guidelines for Americans)<sup>9</sup>

Additionally, HHS and USDA determined that the topic of alcoholic beverages and health requires a comprehensive review with significant, specific expertise and would be best addressed through a process separate from the Committee's work. Two separate scientific reviews on adult alcohol consumption and health are being conducted as of the time of this report's preparation, one by an interagency committee led by HHS, the Interagency Coordinating Committee on the Prevention of Underage Drinking (ICCPUD),<sup>10</sup> and the other by the National Academies of Sciences, Engineering, and Medicine (NASEM).<sup>11</sup> These reviews are independent of each other yet are working on complementary tracks. Both projects include external scientific peer review and opportunities for public participation. Each will result in a report with scientific findings—not recommendations—on alcohol consumption. These findings will be considered by HHS and USDA as the Departments develop the *Dietary Guidelines for Americans, 2025-2030*.

## Public Engagement on Scientific Questions

HHS and USDA publicly issued the proposed scientific questions on April 15, 2022. In the announcement about the questions, the Departments noted that all questions would be reviewed through a

health equity lens (**Box C.1**). The Departments requested public comments on the proposed scientific questions from April 15 through May 16, 2022. Approximately 1,400 public comments were received, with about half of these submissions identified as unique comments. HHS and USDA considered all comments in relation to the criteria listed above as the Departments worked with the Committee to refine and prioritize the scientific questions throughout its review of the science.



### **Box C.1: Health Equity Lens**

When the proposed questions were shared for public comment, HHS and USDA stated that all scientific questions would be reviewed with a health equity lens to ensure that the next edition of the *Dietary Guidelines* is relevant to people with diverse racial, ethnic, socioeconomic, and cultural backgrounds. The steps the Committee took to operationalize the health equity lens are included in this chapter's sections describing each scientific approach and additional context is available in **Part B. Chapter 3: Health Equity and Nutrition.**

After the Committee was appointed (Step 2), it considered the proposed scientific questions and determined if scientific questions should be added, refined, or removed as it prioritized questions for its review. The Committee used the criteria of relevance, importance, potential impact to federal programs, avoiding duplication, and research availability (as described previously) during its prioritization process.

The complete list of scientific questions addressed by the Committee is included in **Table C.1** in this chapter's section titled “Scientific Question Prioritization.” That section also provides rationale for why some questions that were originally proposed by the Departments or the Committee were later deprioritized or discontinued. The list of proposed scientific questions was available for public reference on DietaryGuidelines.gov throughout the Committee’s term.

## **Step 2: Appoint the 2025 Dietary Guidelines Advisory Committee**

After the Departments shared the proposed scientific questions for public comment and determined the expertise needed on the Committee, the next step was to form the Committee. The Committee was convened and governed under the Federal Advisory Committee Act (FACA).<sup>12</sup> The process to form the Committee included establishment of its charter; a public call for nominations; review of nomination packages by HHS and USDA staff, leadership, and ethics officials, including nominees’ financial, ethical, legal, and/or criminal conflicts of interest; and appointment to the Committee by the Secretaries of HHS and USDA.

## **Charter for the 2025 Dietary Guidelines Advisory Committee**

FACA requires that a charter be prepared and filed with Congress before a federal advisory committee meets or takes any action. The charter for the Committee was filed with Congress on December 9, 2022, and was posted publicly on DietaryGuidelines.gov. The charter provides the Committee’s mission or charge, specific duties, and general operational characteristics. The Committee was established to use

approaches including data analysis, systematic reviews, and food pattern modeling to examine evidence on the scientific questions, and then to develop a Scientific Report for submission to the Secretaries of HHS and USDA. The charter stated that the Committee's Scientific Report should describe the Committee's evidence review and conclusions and provide science-based advice and rationale to the Departments based on the preponderance of evidence reviewed. The charter also stated that HHS and USDA would use the Committee's Scientific Report as they develop the *Dietary Guidelines for Americans, 2025-2030*. More information about federal advisory committee charters and other information related to FACA is available through the U.S. General Services Administration (GSA).<sup>12</sup> The responsibility for chartering a committee for each new edition of the *Dietary Guidelines* rotates between HHS and USDA every 5 years. HHS was responsible for chartering the 2025 Committee and serving as the administrative lead for the *Dietary Guidelines for Americans, 2025-2030*. FACA requires that only 1 agency be responsible for support services at any 1 time, even if the advisory committee reports to more than 1 agency (5 U.S.C. § App. 2 § 12(b)). However, in accordance with the National Nutrition Monitoring and Related Research Act of 1990,<sup>13</sup> HHS and USDA work together to support development of the *Dietary Guidelines*, and the Committee's report is submitted to both Secretaries.

## Call for Nominations

HHS and USDA announced a public request for nominations to the 2025 Committee on June 14, 2022. Nominations were accepted from June 15 to July 15, 2022. The nomination package requirements were described in the *Federal Register* notice (Docket ID: OASH-2022-12865). To help support the goal of having a balanced and diverse Committee, the Departments encouraged self-nominations and conducted outreach to make the public aware of the opportunity to provide nominations. HHS and USDA used the following criteria to review nominations:

- Professional Experience: At least 10 years of experience as an academic, researcher, practitioner, or other health professional in a field related to 1 or more of the scientific topic areas to be examined; consideration of leadership experience and participation on previous expert committees or panels.
- Educational Background: Advanced degree in nutrition or health-related field, including registered dietitians, nutrition scientists, physicians, and individuals with public health degrees.
- Demonstrated Scientific Expertise: Expertise related to 1 or more of the scientific topic areas to be examined by the Committee as demonstrated by the number and quality of peer-reviewed publications and presentations. Expertise related to health equity and the scientific approaches used to review the evidence was also desired.
- Balanced and Diverse Membership: A Committee that is reasonably balanced in terms of points of view and expertise, experience, education, and institutional affiliation, with a goal of establishing a diverse membership reflective of the racial, ethnic, gender, and geographic diversity within the United States.

## Review of Nominations

All complete nomination packages were reviewed by HHS and USDA staff based on the criteria described above. Nominations were then evaluated by HHS and USDA leadership.

Each member of the Committee was vetted extensively prior to appointment. As the administrative lead for the 2025 Committee, HHS conducted background checks to determine if any candidates had financial, ethical, legal, and/or criminal conflicts of interest that would prohibit them from serving on the Committee. In addition, in compliance with federal ethics laws and regulations, each Committee member submitted a confidential financial disclosure report (known as the Office of Government Ethics, or OGE, Form 450) and continued to submit this form annually until the Committee's term concluded. HHS ethics officials reviewed the confidential financial disclosure reports and ensured each Committee member's interests and affiliations complied with federal laws and regulations. Following the review process, the individuals recommended for Committee membership were submitted to the Secretaries of HHS and USDA for approval.

## Appointment to the Committee

The Secretaries of HHS and USDA reviewed the Departments' nomination recommendations for proposed Committee members, including Chair and Vice Chair, and jointly appointed individuals to serve on the Committee. On January 19, 2023, HHS and USDA announced the appointment of 20 nationally recognized nutrition and public health experts to serve on the Committee (see [Appendix F-3: Biographical Sketches of the 2025 Dietary Guidelines Advisory Committee](#)). The Committee included experts with experience across life stages from a variety of fields such as nutrition science, medicine, epidemiology, public health, and psychology. The majority of experts had conducted research with diverse populations, and many had expertise in health equity.

## Management of Potential Conflicts of Interest

Members of the Committee were appointed as special government employees (SGEs). All SGEs have a fiduciary responsibility to the federal government while working on advisory committees and must follow comprehensive federal ethics laws and regulations, including criminal conflicts of interest, financial disclosure reporting laws, and Standards of Ethical Conduct for Employees of the Executive Branch per OGE regulations.<sup>14</sup> All members of the Committee complied with the federal ethics laws and regulations governing conflicts of interest, and with the reporting of necessary financial information under these laws. Committee members participated in an Ethics training upon Committee appointment and annually thereafter.

In addition to the requirements of federal ethics laws and regulations, the Committee voluntarily disclosed any relationships, activities, and interests during the prior 12 months that may potentially be related to the content of the Committee's scientific review, using a form from the International Committee of Medical Journal Editors (ICMJE).<sup>15</sup> As defined by ICMJE, "related" referred to any relationship with for-profit or not-for-profit third parties whose interests may affect the content of the Committee's report. These disclosures represent a commitment to transparency and do not necessarily indicate a bias. The

Committee worked collectively to review the evidence on diet and health and provide advice, minimizing any potential bias from individual members. Because its work is collective, the Committee provided its disclosures collectively rather than individually. These voluntary disclosures were posted publicly on DietaryGuidelines.gov and represented a commitment to transparency.

In addition to these measures to manage potential conflicts of interest, the approaches the Committee used to examine the evidence—data analysis, systematic reviews, and food pattern modeling—are rigorous, objective, protocol-driven, and designed to minimize bias. Protocols for each question were developed before examining any evidence and were presented for discussion during the Committee’s meetings. The protocols were also posted to DietaryGuidelines.gov and NESR.usda.gov, providing transparency to the public throughout the Committee’s deliberations. The review of the science was based on consensus. It was not based on any 1 member’s expertise, nor were the final decisions for the scientific evaluation reached on an individual basis. The Committee’s review of the science was completed in a collaborative manner, minimizing the impact of any real or perceived conflicts of interest of individual members. Further, the Committee’s systematic review and food pattern modeling work underwent external peer review as described below, ensuring that this work was transparently described and the conclusions were supported by the evidence.

## Step 3: Committee Reviews Scientific Evidence

The Committee used 3 approaches to examine the evidence: data analysis, systematic reviews, and food pattern modeling. The following sections describe the Committee’s working structure and processes, including the Committee’s process to prioritize the scientific questions proposed by HHS and USDA, the methodology specific to each of the 3 approaches, and how health equity was considered in the examination of evidence. Throughout the process of conducting and documenting its examination of evidence, the Committee sought to use inclusive language ([Box C.2](#)).



### Box C.2: Inclusive Language

The Committee sought to use identity-affirming language that does not exclude, discriminate, or perpetuate stereotypes of groups of people based on factors such as sex, social gender or gender identity, disability, and health status to the extent possible, while accurately reflecting what was reported in data sources and the scientific literature. For instance, the Committee identified “toddler” as an imprecise and ableist descriptor of development that does not include the necessary specificity of the age group and moved to define life stage during early childhood based solely on age. The Committee also used person-first language to avoid stigmatizing and instead center the person above a condition. For recommendations to enhance the design and reporting of surveys and scientific studies to allow for further inclusivity, see [Part E. Chapter 2: Future Directions](#).

# Committee Working Structure and Processes

## Committee Meetings

The Committee met 7 times to provide updates on its review of the science, deliberate on its findings, and plan for future work. In accordance with FACA regulations, all meetings of the Committee were held publicly. The Committee's work began at its first meeting and concluded upon submission of this report to the Departments. All meetings were held in person in Rockville, MD, except for Meetings 4 and 7, which were held virtually. The public was invited to attend all meetings virtually via livestream, and video recordings of each meeting were posted to DietaryGuidelines.gov.

At its first meeting, federal staff provided the Committee with an overview of the proposed scientific questions identified by HHS and USDA. Following this meeting, members divided into Working Groups to refine and prioritize the proposed scientific questions. The Committee discussed the results of this process at its second meeting. After the Committee's second meeting, the Committee established its Subcommittee structure, which it used to conduct its review of the science on its prioritized scientific questions. At Meetings 3 through 6, the Committee heard updates from each Subcommittee and discussed progress made on its review of the science. Topics included protocol and plan development, evidence reviewed and analyses conducted, draft conclusion statements, and plans for future Committee work. Federal staff from HHS and USDA supported the Committee throughout its work. The Committee's seventh and final meeting focused on its Scientific Report. This meeting provided an opportunity for Committee discussion and deliberation before it submitted its report to the Departments. Meeting materials including agendas, videocast recordings, presentation slides, and summaries, were posted to DietaryGuidelines.gov following each meeting.

The Committee also participated in 4 administrative trainings, which were solely administrative and did not include discussion or deliberations about the Committee's review of the science. All administrative trainings were held virtually via webinar. The first administrative training was held on January 30, 2023, prior to the Committee's first meeting, to prepare the Committee for its work of examining the evidence. It included an overview of the Committee's charter, operations, and timeline; an introduction to DietaryGuidelines.gov; a public affairs briefing; and an introduction to FACA. A second administrative training on May 26, 2023, oriented the Committee to the Nutrition Evidence Systematic Review (NESR) methodology. A third administrative training on October 30, 2023, oriented the Committee to the organization of its Scientific Report and the writing responsibilities of members. A final administrative training was held virtually on December 4, 2024, to share information on the posting of the Committee's Scientific Report, including plans for the Scientific Report release. Ethics trainings were also conducted upon Committee appointment and annually thereafter.

## Scientific Question Prioritization

As described earlier in this chapter, the Committee formed Working Groups to refine and prioritize the proposed scientific questions. The Working Groups used in their prioritization the same criteria that HHS and USDA used to identify the scientific questions in Step 1, and also considered public comments.

For questions answered using data analysis, federal staff from the HHS Office of Disease Prevention and Health Promotion (ODPHP) and the USDA Center for Nutrition Policy and Promotion (CNPP) worked with the Committee to prioritize data analyses that described and considered factors such as socioeconomic position, food security, and race and/or ethnicity. All 4 data analysis questions identified by HHS and USDA were completed.

For questions answered using systematic review methodology, staff from USDA's NESR Branch provided preliminary research availability estimates for proposed systematic review questions. The Committee decided to adjust the wording of some questions, added questions, and deprioritized some questions, and ultimately completed 28 systematic reviews. The Committee also opted to conduct 1 evidence scan. An evidence scan is an exploratory evidence description project in which systematic methods are used to search for and describe the volume and characteristics of evidence available on a nutrition question or topic of public health importance. As described later in this report, this evidence scan provides a basis for a future expert committee to develop systematic review protocols.

For questions answered using food pattern modeling methodology, federal staff from ODPHP and CNPP supported the Committee in planning and prioritizing a series of analyses that would provide evidence for the Committee to answer the overarching food pattern modeling question. These analyses were outlined by the Committee in 9 food pattern modeling protocols and 2 additional protocols that were exploratory analyses. The results of these food pattern modeling analyses were synthesized with results from systematic review and data analysis to answer the overarching question.

As was the case with previous Committees, prioritization continued throughout the Committee's review of the science to ensure the highest priority questions could be completed within the Committee's term. Decisions to discontinue systematic review questions were discussed publicly at the Committee's meetings and were documented on DietaryGuidelines.gov with the rationale explaining why the questions were discontinued. The list of scientific questions the Committee ultimately addressed in its review of the science was available on DietaryGuidelines.gov throughout the process and is presented in [Table C.1](#).

**TABLE C.1**  
SCIENTIFIC QUESTIONS ADDRESSED BY THE COMMITTEE'S REVIEW OF THE SCIENCE

Question	Approach
What are the current patterns of food and beverage intake?	Data Analysis
What are the current intakes of food groups, nutrients, and dietary components?	Data Analysis
What is the current prevalence of nutrition-related chronic health conditions?	Data Analysis

Question	Approach
Which nutrients and/or dietary components present a substantial public health concern because of underconsumption or overconsumption?	Data Analysis
What is the relationship between dietary patterns consumed and growth, body composition, and risk of obesity?	Systematic Review
What is the relationship between dietary patterns consumed and risk of cardiovascular disease?	Systematic Review
What is the relationship between dietary patterns consumed and risk of type 2 diabetes?	Systematic Review
What is the relationship between consumption of dietary patterns with varying amounts of ultra-processed foods and growth, body composition, and risk of obesity?	Systematic Review
What is the relationship between dietary patterns consumed and risk of breast cancer?	Systematic Review
What is the relationship between dietary patterns consumed and risk of colorectal cancer?	Systematic Review
What is the relationship between dietary patterns consumed and risk of cognitive decline, dementia, and Alzheimer's disease?	Systematic Review
What is the relationship between beverage patterns consumed and growth, body composition, and risk of obesity?	Systematic Review
What is the relationship between dairy milk and milk alternative consumption and growth, body composition, and risk of obesity?	Systematic Review
What is the relationship between 100% juice consumption and growth, body composition, and risk of obesity?	Systematic Review
What is the relationship between sugar-sweetened beverage consumption and growth, body composition, and risk of obesity?	Systematic Review
What is the relationship between low- and no-calorie sweetened beverage consumption and growth, body composition, and risk of obesity?	Systematic Review
What is the relationship between sugar-sweetened beverage consumption and risk of type 2 diabetes?	Systematic Review
What is the relationship between low- and no-calorie sweetened beverage consumption and risk of type 2 diabetes?	Systematic Review
What is the relationship between food sources of saturated fat consumed and risk of cardiovascular disease?	Systematic Review
What is the relationship between dietary patterns consumed during pregnancy and risk of hypertensive disorders of pregnancy?	Systematic Review
What is the relationship between dietary patterns consumed during pregnancy and risk of gestational diabetes mellitus?	Systematic Review
What is the relationship between repeated exposure to foods and food acceptance?	Systematic Review
What is the relationship between complementary feeding and growth, body composition, and risk of obesity?	Systematic Review
What is the relationship between parental and caregiver feeding styles and practices during childhood and growth, body composition, and risk of obesity?	Systematic Review

Question	Approach
What is the relationship between parental and caregiver feeding styles and practices during childhood and consuming a dietary pattern that is aligned with the <i>Dietary Guidelines for Americans</i> ?	Systematic Review
What is the relationship between dietary patterns consumed during pregnancy and gestational age at birth?	Systematic Review
What is the relationship between dietary patterns consumed during pregnancy and birth weight?	Systematic Review
What is the relationship between frequency of meals and/or snacks and growth, body composition, and risk of obesity?	Systematic Review
What is the relationship between frequency of meals and/or snacks and energy intake?	Systematic Review
What is the relationship between frequency of meals and/or snacks and consuming a dietary pattern that is aligned with the <i>Dietary Guidelines for Americans</i> ?	Systematic Review
What is the relationship between portion size and growth, body composition, and risk of obesity?	Systematic Review
What is the relationship between portion size and energy intake?	Systematic Review
What evidence has been published on the relationship between culturally tailored dietary interventions and diet-related psychosocial factors, dietary intake, diet quality, and health outcomes?	Evidence Scan
Should foods and beverages with lower nutrient density (i.e., those with added sugars, saturated fat, and sodium) contribute to item clusters, representative foods, and therefore the nutrient profiles for each food group and subgroup used in modeling the USDA Dietary Patterns?	Food Pattern Modeling
What are the differences between nutrient profiles calculated using the dietary intakes of the total U.S. population and population groups?	Food Pattern Modeling
What are the implications for nutrient intakes when modifying the Dairy and Fortified Soy Alternatives food group quantities within the Healthy U.S.-Style Dietary Pattern? What are the implications for nutrient intakes when dairy food and beverage sources are replaced with non-dairy alternatives?	Food Pattern Modeling
What are the implications for nutrient intakes when modifying the Fruits food group quantities within the Healthy U.S.-Style Dietary Pattern?	Food Pattern Modeling
What are the implications for nutrient intakes when modifying the Vegetables food group and subgroup quantities within the Healthy U.S.-Style Dietary Pattern?	Food Pattern Modeling
What are the implications for nutrient intakes when modifying the quantities of the Grains group within the Healthy U.S.-Style Dietary Pattern? What are the implications for nutrient intakes when specific individual staple grains are emphasized; or when the Grains group is replaced with other staple carbohydrate foods (i.e., Starchy Vegetables; Beans, Peas, and Lentils; starchy Red and Orange vegetables)?	Food Pattern Modeling
What are the implications for nutrient intakes when modifying the Protein Foods group and subgroup quantities within the Healthy U.S.-Style Dietary Pattern or Healthy Vegetarian Dietary Pattern? What are the implications for nutrient intakes when proportions of animal-	Food Pattern Modeling

Question	Approach
based Protein Foods subgroups are reduced and proportions of plant-based Protein Foods subgroups are increased?	
What quantities of foods and beverages lower in nutrient density can be accommodated in the USDA Dietary Patterns while meeting nutritional goals within calorie levels?	Food Pattern Modeling
Can nutrient goals be met when animal sources of foods and beverages are removed from the Healthy Vegetarian Dietary Pattern for ages 2 years and older?	Food Pattern Modeling – Exploratory Analysis
Can nutrient goals be met when carbohydrate-containing foods and beverages are reduced in the Healthy U.S.-Style Dietary Pattern for ages 2 years and older?	Food Pattern Modeling – Exploratory Analysis
Do simulated diets that meet the updated USDA Dietary Patterns and reflect variation in dietary intakes achieve nutrient adequacy?	Food Pattern Modeling – Diet Simulation
Considering each life stage, should changes be made to the USDA Dietary Patterns (Healthy U.S.-Style, Healthy Mediterranean-Style, and/or Healthy Vegetarian), and should additional Dietary Patterns be developed/proposed based on: <ul style="list-style-type: none"> <li>Findings from systematic reviews, data analysis, and/or food pattern modeling analyses; and/or</li> <li>Population norms, preferences, or needs of the diverse communities and cultural foodways within the U.S. population?</li> </ul>	Overarching Question

Proposed systematic review and evidence scan questions that the Committee decided to deprioritize, along with rationale and the meeting at which the Committee discussed the decision to deprioritize, are listed in [Table C.2](#).

**TABLE C.2**  
DEPRIORITIZED SYSTEMATIC REVIEW AND EVIDENCE SCAN QUESTIONS

Question	Rationale	Timing of Decision
What is the relationship between dietary patterns consumed and risk of sarcopenia?	The Committee determined that a lack of research was available to update the existing NESR systematic review.	Meeting 2
What is the relationship between dietary patterns consumed and all-cause mortality?	The recent existing NESR systematic review had a conclusion statement graded as “strong” and the Committee chose to prioritize other outcomes in relation to dietary patterns.	Meeting 2
What is the relationship between dietary patterns consumed before and during pregnancy and lactation and developmental milestones, including neurocognitive development, in the child?	The Committee determined that a lack of research was available to update the existing NESR systematic review.	Meeting 2
What is the relationship between dietary patterns consumed and risk of lung cancer?	The Committee determined that a lack of research was available to update the existing NESR systematic review.	Meeting 2