2025 Dietary Guidelines Advisory Committee: Meeting 1

Janet M. de Jesus, MS, RD
Designated Federal Officer (DFO)
Office of Disease Prevention and Health Promotion
Office of the Assistant Secretary for Health
U.S. Department of Health and Human Services

February 9, 2023

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2025 Dietary Guidelines Advisory Committee

Steven Abrams, MD
University of Texas
at Austin

Cheryl Anderson, PhD, MPH, MS
University of California
San Diego

Aline Andres, PhD, RD
University of Arkansas
for Medical Sciences

Sarah Booth, PhD
Tufts University
Chair

Carol Byrd-Bredbenner, PhD, RD, FAND
Rutgers, The State University of
New Jersey

Andrea Deierlein, PhD, MPH, MS
New York University

Heather Eicher-Miller, PhD
Purdue University

Teresa Fung, ScD, RD
Simmons University

Christopher Gardner, PhD
Stanford University

Edward Giovannucci, MD, ScD
Harvard University

Deanna Hoelscher, PhD, RDN, LD, CNS, FISBNPA
The University of Texas
at Austin

Valarie Blue Bird Jernigan, DrPH, MPH
Oklahoma State
University

Angela Odoms-Young, PhD
Cornell University
Vice Chair

Jennifer Orlet Fisher, PhD
Temple University

Christina Palacios, PhD, MSc
Florida International University

Hollie Raynor, PhD, RD, LDN
University of Tennessee
Knoxville

Fatima Cody Stanford, MD, MPH, MPA, MBA, FAAP, FACP, FAHA, FAMWA, FTOS
Harvard University

Sameera Talegawkar, PhD
The George Washington
University

Christopher Taylor, PhD, RDN, LD, FAND
The Ohio State University

Deirdre Tobias, ScD
Harvard University

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2025 Dietary Guidelines Advisory Committee: Meeting 1

Day 1 Agenda

9:00am- 4:30pm

- Committee Swearing In
- Committee charter, operations and timeline
- Dietary Guidelines Advisory Committee Chair and Vice-Chair Remarks
- History and Evolution of the Dietary Guidelines and the Approaches for Examining the Evidence
- Nutrition Evidence Systematic Review
- Food Pattern Modeling
- Data Analysis
- Committee Discussion

Committee Swearing-In

Sarah Boateng, MHA
Principal Deputy Assistant Secretary for Health
Office of the Assistant Secretary for Health
U.S. Department of Health and Human Services

February 9, 2023

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Oath of Office

I do solemnly swear
that I will support and defend the constitution of the United States
against all enemies, foreign and domestic,
that I will bear true faith and allegiance to the same
that I take this obligation freely
without any mental reservation or purpose of evasion
and that I will well and faithfully discharge the duties
of the office on which I am about to enter
so help me God.

Committee Charter, Operations, and Timeline

Janet de Jesus, MS, RD
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U.S. Department of Health and Human Services

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About the Dietary Guidelines for Americans

- Provides advice on nutrition intake to meet nutrient needs, promote health, and help prevent chronic disease.

- Serves as the cornerstone of federal nutrition programs and policies, providing food-based recommendations to help prevent diet-related chronic diseases and promote overall health.

- Includes dietary recommendations for the entire lifespan including pregnancy and lactation.

National Nutrition Monitoring and Related Research Act (1990)

Mandates that the *Dietary Guidelines for Americans* shall:

- Contain nutritional and dietary information and guidelines for the general public;
- Published jointly by the Secretaries of HHS and USDA at least every five years;
- Based on the preponderance of the scientific and medical knowledge which is current at the time it is prepared; and
- Promoted by each federal agency in carrying out any federal food, nutrition, or health program.

Dietary Guidelines Advisory Committee

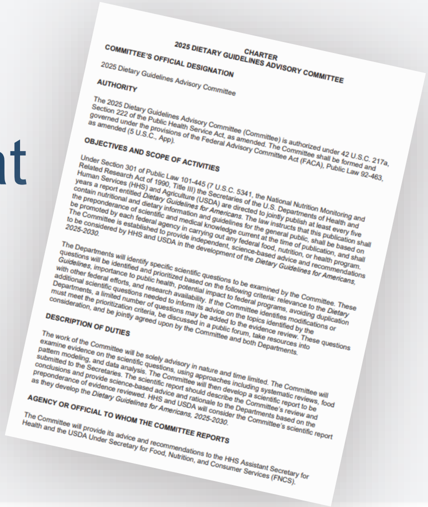
- Formed and governed under the 1972 Federal Advisory Committee Act (FACA).
  - Formal processes for establishing, operating, overseeing, and terminating federal advisory committees.
  - Members of the Committee are appointed as “special government employees” (SGEs), selected based on recognized expertise and expert knowledge relevant to the Committee.

Committee Charter

- The Federal Advisory Committee Act (FACA) requires a charter to be filed with Congress that describes the Committee's mission and function before a federal advisory committee can meet or take any action.

- The Charter for the 2025 Dietary Guidelines Advisory Committee was filed with Congress on December 9, 2022.

- 2025 Dietary Guidelines Advisory Committee Charter is available at DietaryGuidelines.gov.



CHARTER
2025 DIETARY GUIDELINES ADVISORY COMMITTEE

COMMITTEE'S OFFICIAL DESIGNATION

2025 Dietary Guidelines Advisory Committee

AUTHORITY

The 2025 Dietary Guidelines Advisory Committee (Committee) is authorized under 42 U.S.C. 217a, Section 222 of the Public Health Service Act, as amended. The Committee shall be formed and governed under the provisions of the Federal Advisory Committee Act (FACA), Public Law 92-463, as amended (5 U.S.C., App).

OBJECTIVES AND SCOPE OF ACTIVITIES

Under Section 301 of Public Law 101-445 (7 U.S.C. 5341, the National Nutrition Monitoring and Related Research Act of 1990, Title III) the Secretaries of the U.S. Departments of Health and Human Services (HHS) and Agriculture (USDA) are directed to jointly publish at least every five years a report entitled *Dietary Guidelines for Americans*. The law instructs that this publication shall contain nutritional and dietary information and guidelines for the general public, shall be based on the preponderance of scientific and medical knowledge current at the time of publication, and shall be promoted by each federal agency in carrying out any federal food, nutrition, or health program. The Committee is established to provide independent, science-based advice and recommendations to be considered by HHS and USDA in the development of the *Dietary Guidelines for Americans, 2025-2030*.

The Departments will identify specific scientific questions to be examined by the Committee. These questions will be identified and prioritized based on the following criteria: relevance to the *Dietary Guidelines*, importance to public health, potential impact to federal programs, avoiding duplication with other federal efforts, and research availability. If the Committee identifies modifications or additional scientific questions needed to inform its advice on the topics identified by the Departments, a limited number of questions may be added to the evidence review. These questions must meet the prioritization criteria, be discussed in a public forum, take resources into consideration, and be jointly agreed upon by the Committee and both Departments.

DESCRIPTION OF DUTIES

The work of the Committee will be solely advisory in nature and time limited. The Committee will examine evidence on the scientific questions, using approaches including systematic reviews, food pattern modeling, and data analysis. The Committee will then develop a scientific report to be submitted to the Secretaries. The scientific report should describe the Committee's review and conclusions and provide science-based advice and rationale to the Departments based on the preponderance of evidence reviewed. HHS and USDA will consider the Committee's scientific report as they develop the *Dietary Guidelines for Americans, 2025-2030*.

AGENCY OR OFFICIAL TO WHOM THE COMMITTEE REPORTS

The Committee will provide its advice and recommendations to the HHS Assistant Secretary for Health and the USDA Under Secretary for Food, Nutrition, and Consumer Services (FNCS).

Committee Charter: Description of Duties

- Committee is established to provide independent, science-based advice and recommendations to be considered by HHS and USDA in the development of the *Dietary Guidelines for Americans*

- Committee will:
  - Examine the evidence on the topics and scientific questions identified by the Departments;
  - Develop a report that outlines its science-based review and recommendations to the Departments with rationale; and
  - Submit its report to the Secretaries of HHS and USDA for consideration as the Departments develop the *Dietary Guidelines for Americans*

Operations: Subcommittees

- The Committee may establish subcommittees.
- The purpose of the subcommittees is to review evidence and provide advice to the parent Committee.
- Each subcommittee will conduct its work together between meetings of the full Committee and will provide updates for deliberation and decisions by the full Committee during public meetings.

Operations: Support – Reviewing the Evidence

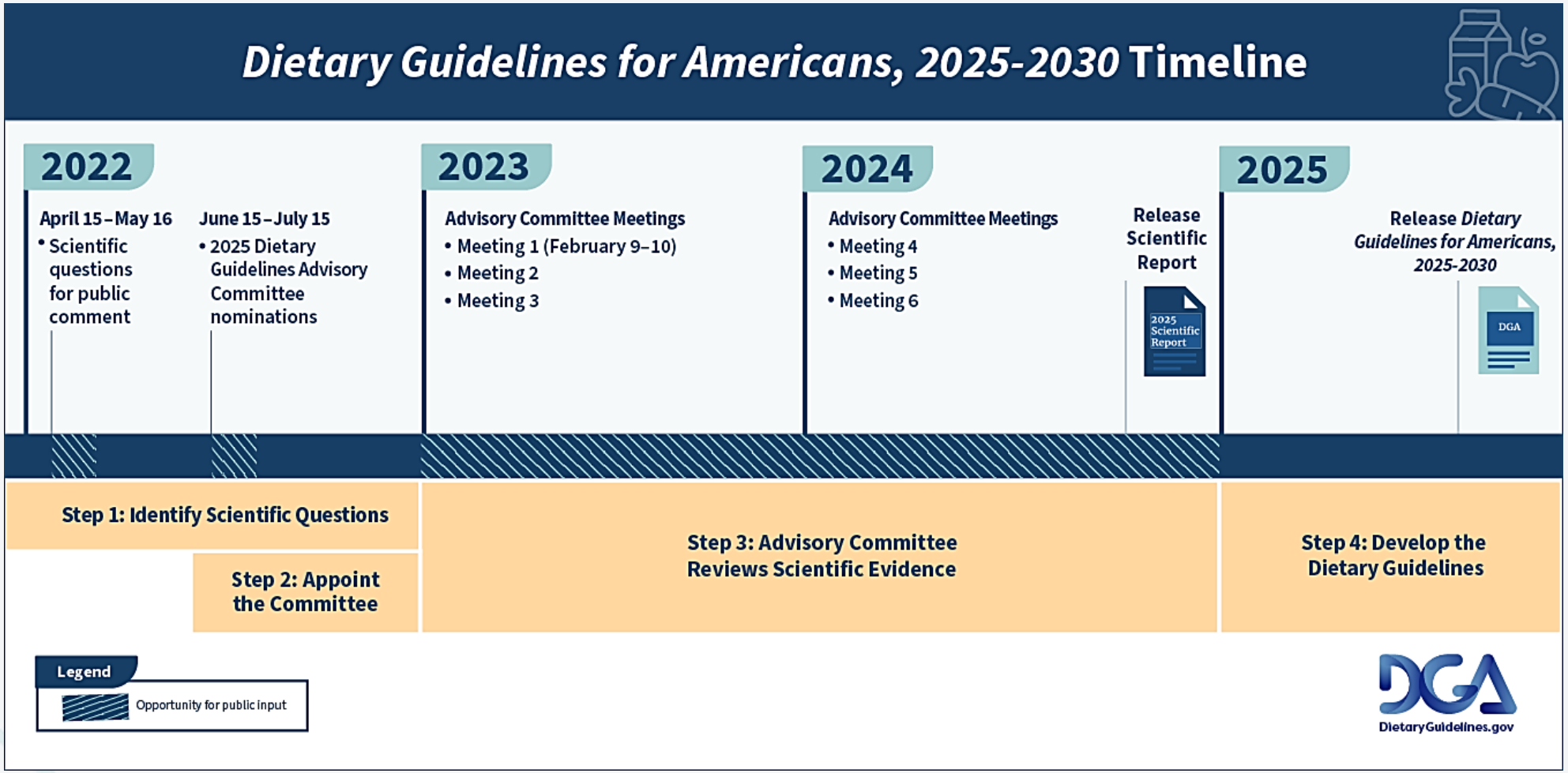
- The Departments will offer support for three approaches for reviewing the evidence:
  - Systematic reviews
  - Data analyses
  - Food pattern modeling
- These approaches are rigorous, objective, and protocol-driven, and are designed to minimize bias.

Federal staff will support the Committee, but the ultimate conclusions and recommendations are of the Committee.

Charter: Committee Duration

- The Committee's task is time-limited.
- The Committee will terminate after delivery of its final report to the Secretaries of HHS and USDA or two years from the date the Charter was filed with Congress (December 9, 2022), whichever comes first.
- The Departments request the Committee's report by October 2024.

Timeline and Opportunities for Public Comment



Submit a public comment at https://www.dietaryguidelines.gov/submit-comment

Committee Meetings

*Oral public comment opportunity
Registration will be announced in the Federal Register and at DietaryGuidelines.gov and through Dietary Guidelines listserv

DietaryGuidelines.gov

The Committee's Administrative Trainings

- Completed prior to this meeting.
- Introduction to FACA.
- Ethics training by HHS Office of Ethics.
- Guidance on interactions with media from the Office of Disease Prevention and Health Promotion, Office of Communications.
- Generally, Committee members are asked not to speak on behalf of the Committee.
  - Asked to direct stakeholders to the written public comment process, to direct media requests to the Departments, and to only discuss information that is publicly available.

HHS and USDA Partnership

- The responsibility for serving as administrative lead every five years rotates between HHS and USDA.
  - HHS chartered the 2025 Dietary Guidelines Advisory Committee. *Guidelines for Americans, 2025-2030*.
  - HHS and USDA will work together to support the Committee and to develop the *Dietary Guidelines for Americans, 2025-2030*.

Leadership in *Dietary Guidelines* Development

HHS
Xavier Becerra, JD
Secretary

ADM Rachel L. Levine, MD
Assistant Secretary for Health
Office of the Secretary

RDML Paul Reed, MD
Deputy Assistant Secretary for Health
Director, Office of Disease Prevention and Health Promotion

USDA
Tom Vilsack, JD
Secretary

Stacy Dean, MPP
Deputy Under Secretary
Food, Nutrition, and Consumer Services

Jackie Haven, MS, RD
Deputy Administrator
Center for Nutrition Policy and Promotion

Dietary Guidelines: Federal Liaisons and Communications Staff

HHS Office of Disease Prevention and Health Promotion

- Katrina Piercy, PhD, RD, FACSM
  Division Director, CMD Public Health Service
- **Janet de Jesus,** MS, RD, *Designated Federal Officer*
- Dennis Anderson-Villaluz, MBA, RD, LDN, FAND
  LDCR, Public Health Service
- Kara Beckman, PhD
- Carolyn Chung, PhD, (Detail- FDA)
- Dana DeSilva, PhD, RD
- Holly McPeak, MS
- Joe Rorabaugh-Irwin MS, RDN (Detail- IHS)
  LCDR, Public Health Service

USDA Center for Nutrition Policy and Promotion

- **Eve Stoody**, PhD *Division Director*
- Elizabeth Rahavi, RD *Branch Chief*
- Julie Obbagy, PhD, RD *Branch Chief*
- TusaRebecca Pannucci, PhD, MPH, RD, *Branch Chief*
- Meghan Adler, MS, RD
- Jean Altman, MS
- Stephenie Fu
- Tessa Lasswell, MPH, RDN
- Chinwe Obudulu, MS, RD, LD
- Julia Quam, MSPH, RDN
- Kelley Scanlon, PhD, RD

ODPHP Communications

- Jennifer Bishop, ScD, MPH
- Ted McCarthy

Science Writer

Emily Callahan, MPH, RDN

CNPP Communications

- Jessica Larson, MS, RD

Nutrition Evidence Systematic Review (NESR) Staff

- **Julie Obbagy**, PhD, RD
  NESR Branch Chief
- Charlotte Bahnfleth, PhD
- Emily Callahan, MS
- Natasha Cole, PhD, MPH, RD
- Laural English, PhD
- Amanda Fultz, PhD, RDN, LDN
- Molly Higgins, MLIS
- Julia Kim, PhD, MPH, RD
- Brittany Kingshipp, PhD
- Shabnam Momin, PhD
- Julie Nevins, PhD
- Kripa Raghavan, DrPh, MPH, MSc
- Nicole Reigh, PhD
- Sara Scinto-Madonich, MS
- Joanne Spahn, MS, RD
- Allison Webster, PhD, RD
- Betsy Becker, PhD

Librarians

- Kevin Bokay, MHRM, MLIS
- Gisela Butera, MEd, MLIS
- Molly Higgins, MLIS
- Nancy Terry, MLIS

- Eve Stoody, PhD
  Director, Nutrition Guidance and Analysis Division

Data Analysis Team

- **Dana DeSilva**, PhD, RD
  co-lead
- **Colleen Sideck**, MPH, RDN
  co-lead
- Kara Beckman, PhD
- Carolyn Chung, PhD
- Kevin Kuczynski, MS, RD
- Tessa Lasswell, MPH, RDN
- Emily Madan, PhD
- Chinwe Obudulu, MS, RD, LD
- TusaRebecca Pannucci, PhD, MPH, RD
- LDCR Joe Rorabagh-Irwin, MS, RD
- Janet de Jesus, MS, RD
- Eve Stoody, PhD

Food Pattern Modeling Interest Group

- **TusaRebecca Pannucci**, PhD, MPH, RD
  Nutrition and Economic Analysis Branch Chief
- Meghan Adler, MS, RD*
- Carolyn Chung, PhD
- Stephenie Fu
- Hazel Hiza , PhD, RD*
- Kevin Kuczynski, MS, RD*
- Emily Madan, PhD*
- Verena McClain, PhD, MSc*
- Julia Quam, MSPH, RDN
- Kripa Raghavan, DrPh, MPH, MSc
- Kelley Scanlon, PhD, RD*
- Colleen Sideck, MPH, RDN*
- Janet de Jesus, MS, RD
- Eve Stoody, PhD

**Denotes staff who are part of the FPM methods team and will conduct analysis*

The Committee's Important Role: To Describe the State of Current Nutrition Science

Each edition of the *Dietary Guidelines* that HHS and USDA develop builds upon the previous edition, with scientific justification for changes informed by the Committee's scientific report – along with input from federal agencies and the public.

The Departments thank you for your service and look forward to receiving your scientific report.

Thank you!

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Dietary Guidelines Chair and Vice-Chair Remarks

Sarah Booth, PhD
Angela Odoms-Young, PhD

February 9, 2023

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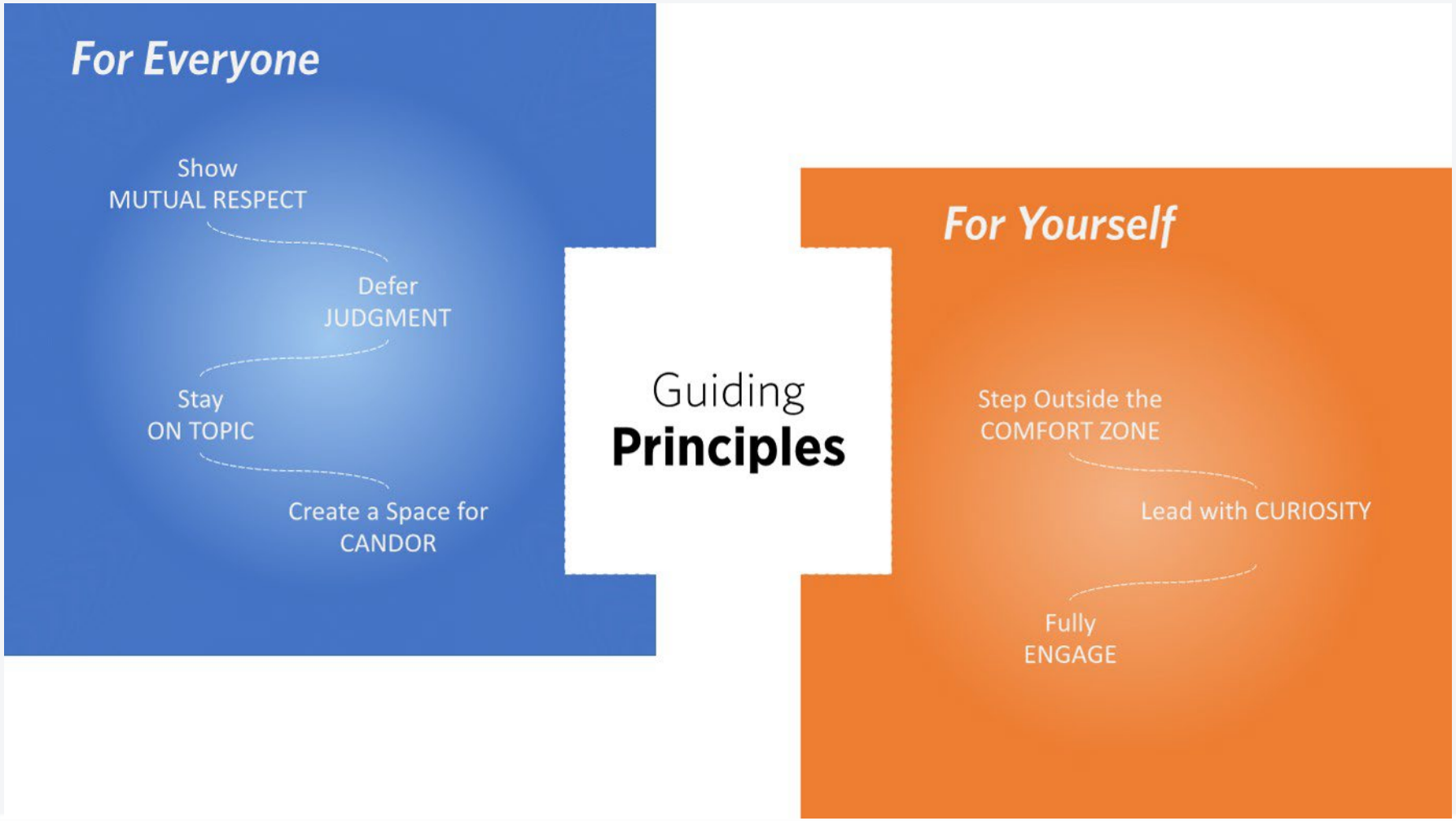
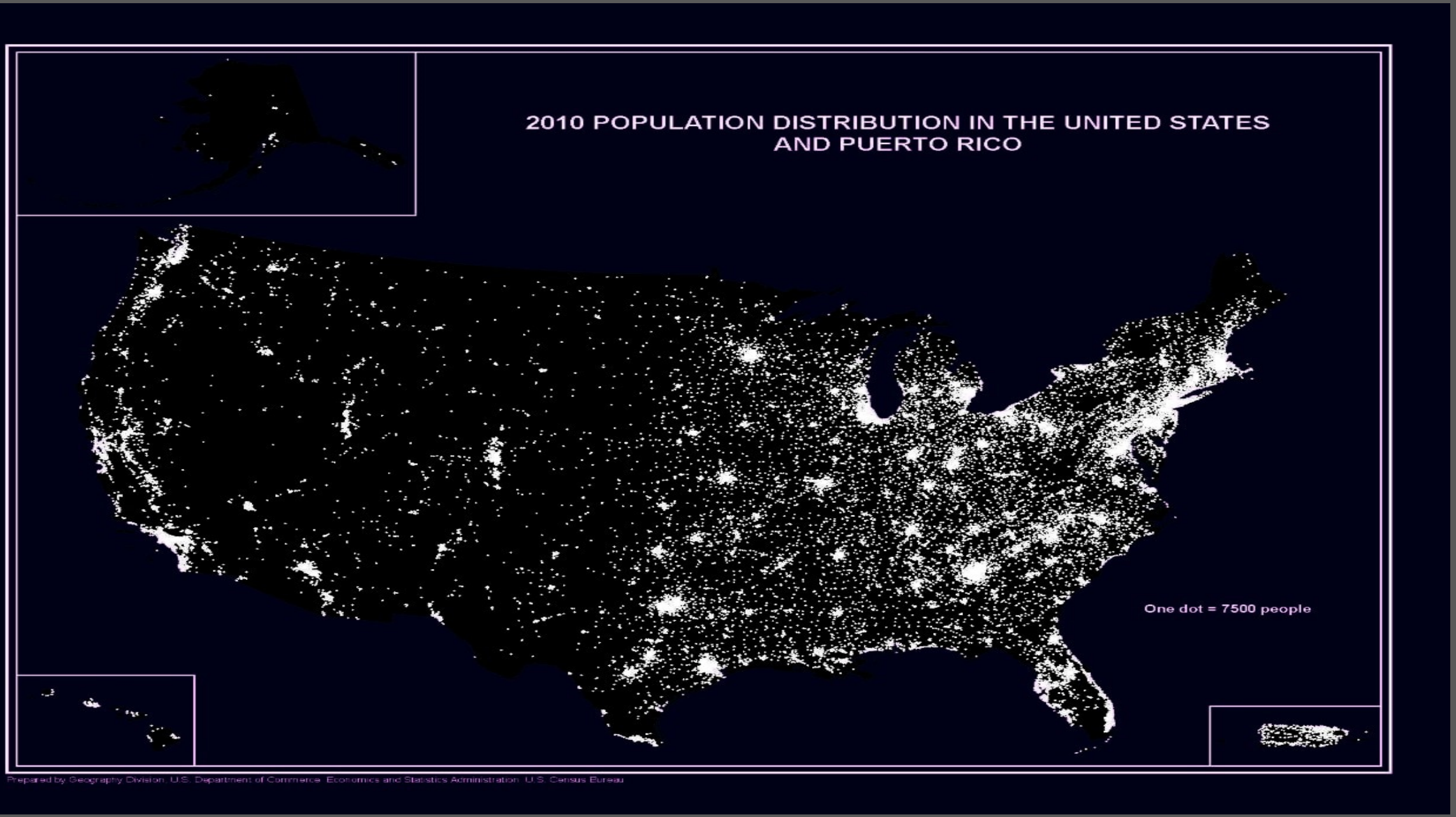
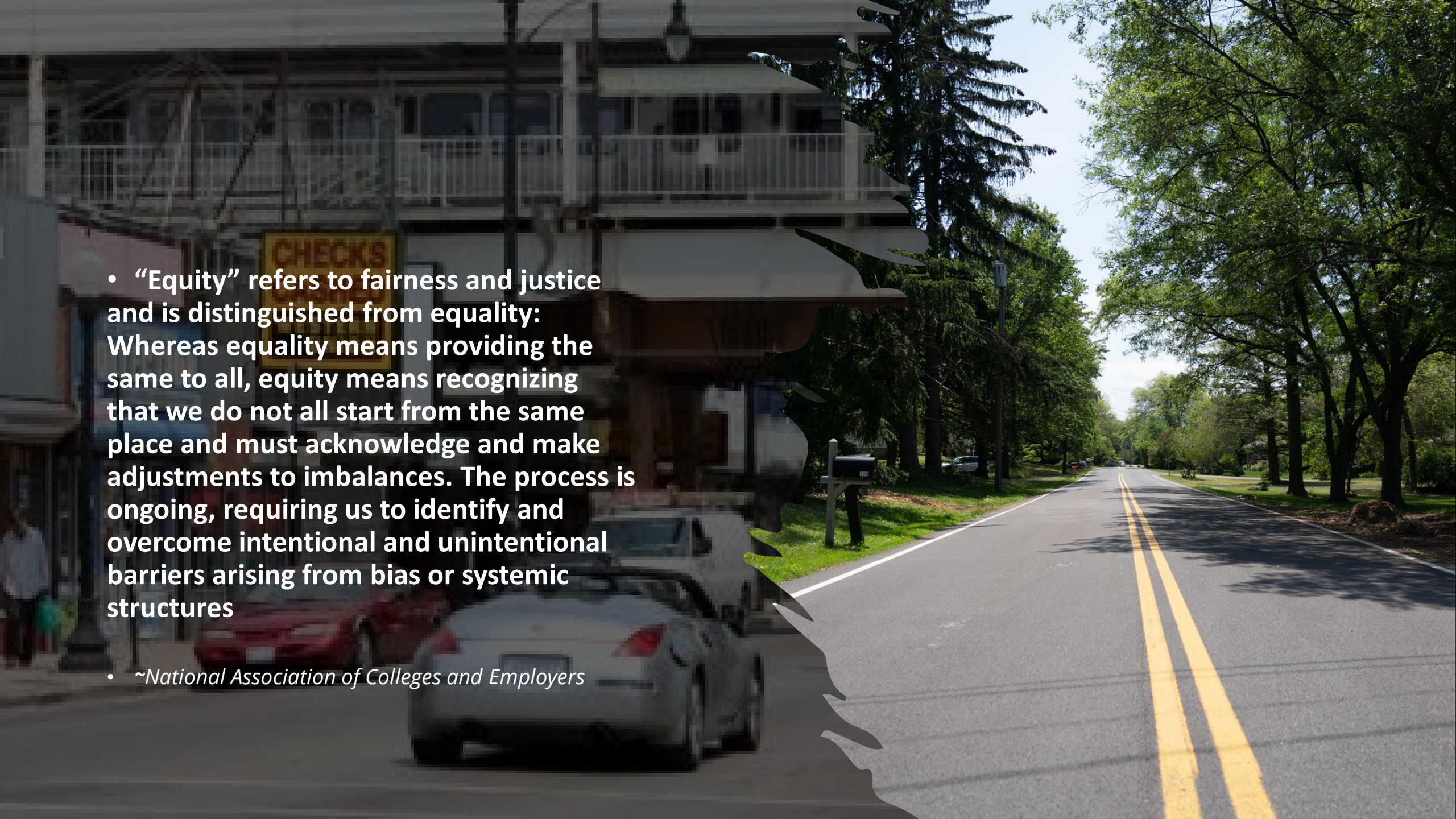


Courtesy of the Tufts Design Team


2010 POPULATION DISTRIBUTION IN THE UNITED STATES
AND PUERTO RICO
One dot = 7500 people
Prepared by Geography Division, U.S. Department of Commerce, Economics and Statistics Administration, U.S. Census Bureau

Guidelines that Meet the Needs of a Diverse Population



- **“Equity” refers to fairness and justice and is distinguished from equality: Whereas equality means providing the same to all, equity means recognizing that we do not all start from the same place and must acknowledge and make adjustments to imbalances. The process is ongoing, requiring us to identify and overcome intentional and unintentional barriers arising from bias or systemic structures**

- *~National Association of Colleges and Employers*

History and Evolution of the *Dietary Guidelines* and the Approaches for Examining the Evidence

Elizabeth Rahavi, RD
Branch Chief, Nutrition Guidance Branch
Center for Nutrition Policy and Promotion
Food and Nutrition Service
U.S. Department of Agriculture

February 9, 2023

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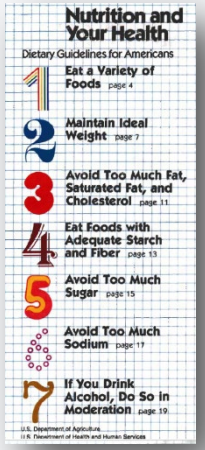
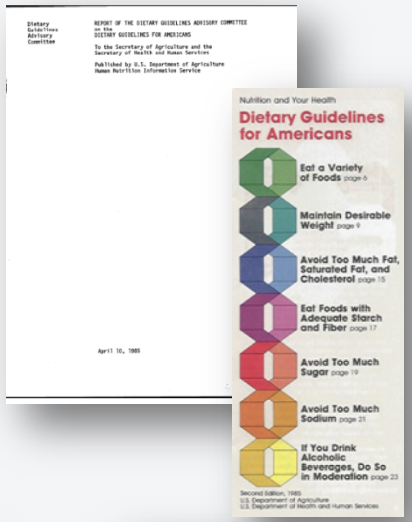
Overview

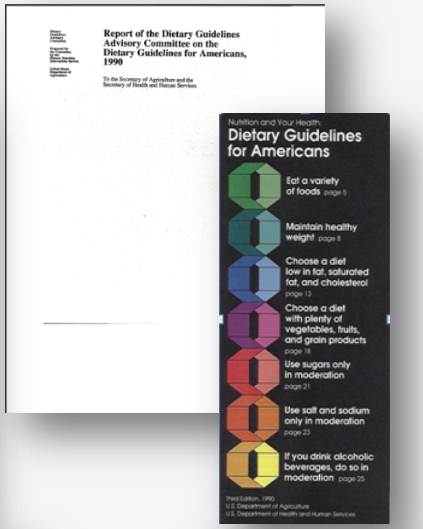
- History and evolution of *Dietary Guidelines*
- Current approaches to examine the evidence
  - Introduction
  - Complementary
- Considerations as you examine the evidence
- Looking ahead

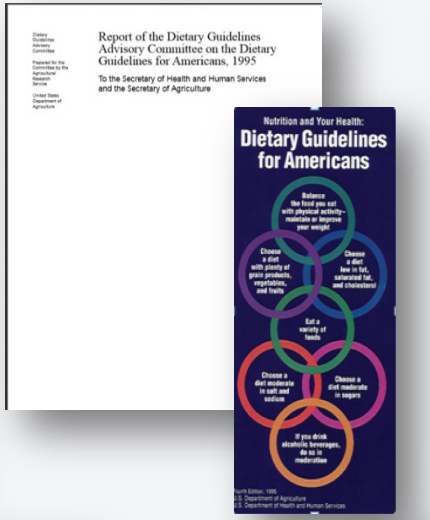
Dietary Guidelines Provides "Nutritional and Dietary Information and Guidelines for the General Public"

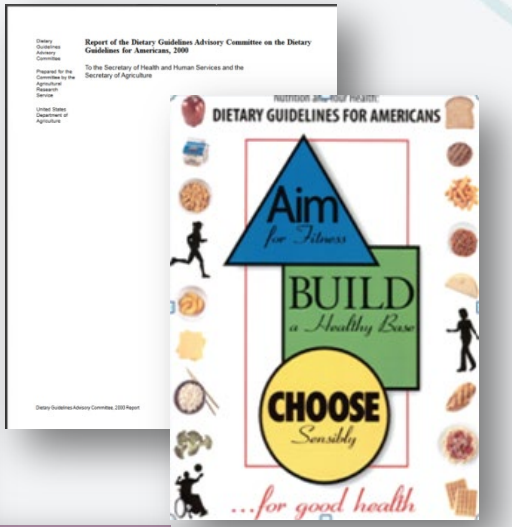
1980

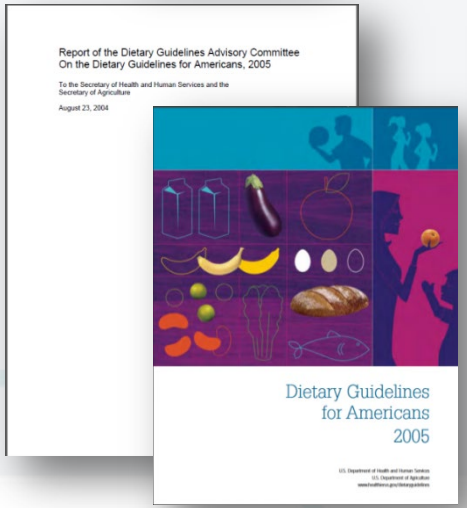


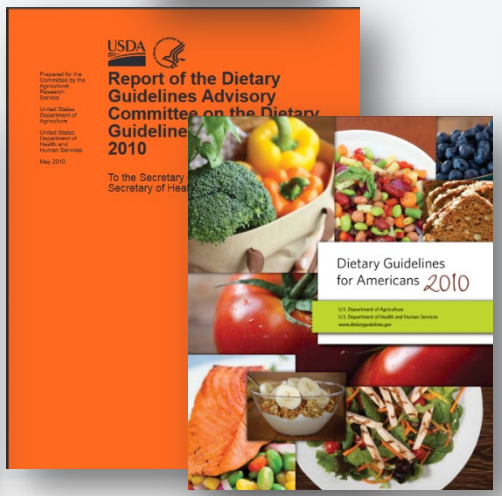


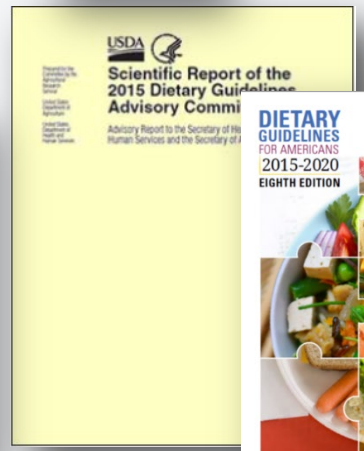


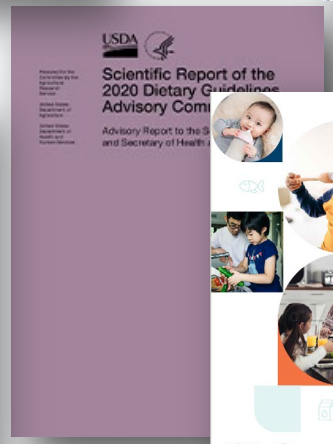


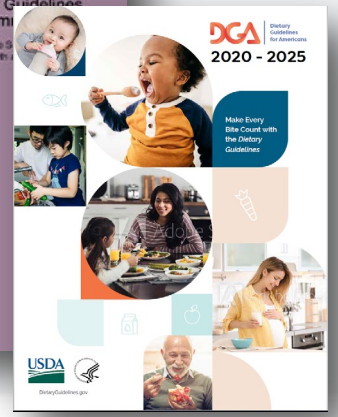












…10th edition!

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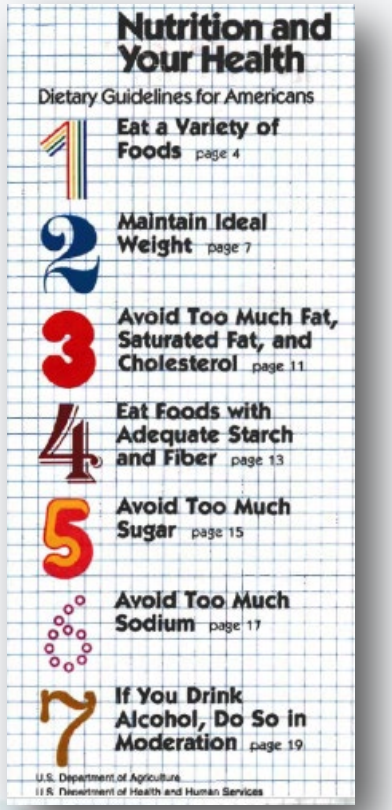
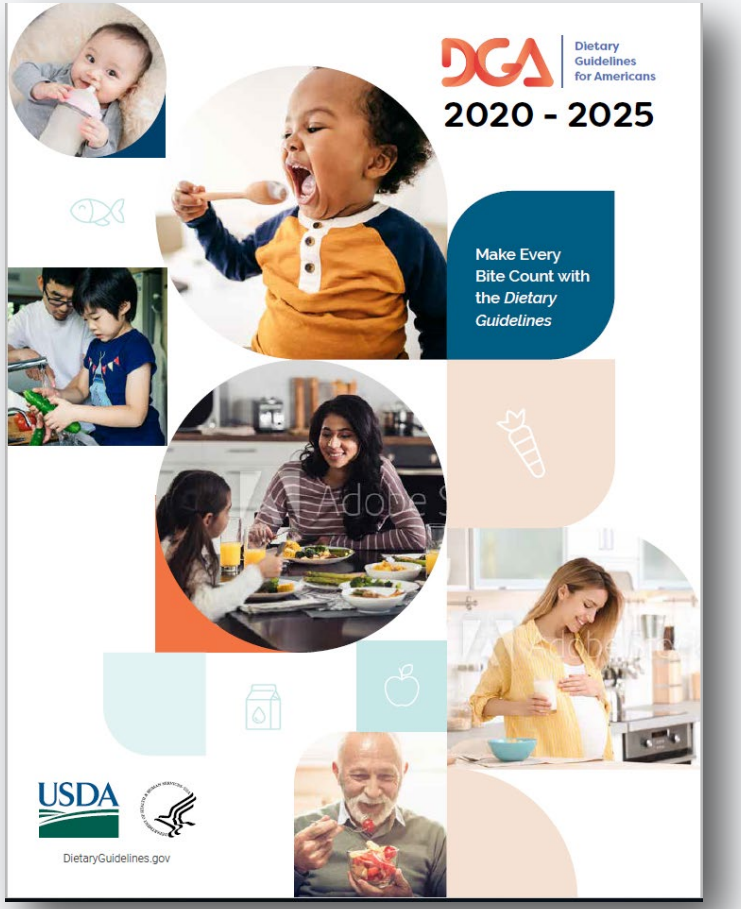
USDA

Guidance has Evolved as Nutrition Science has Advanced



Early advice:
Focused on nutrients

More recent editions:
Focus on dietary patterns, or combinations of foods eaten over time;
More quantitative information and refinements in guidance



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Type of Publication has Evolved

First four editions:
Brochure for consumers

Last five editions:
Technical document written for health professionals and policy makers to be tailored for respective audience; Accompanied by consumer brochure featuring the Food Guide Pyramid, and more recently, MyPlate

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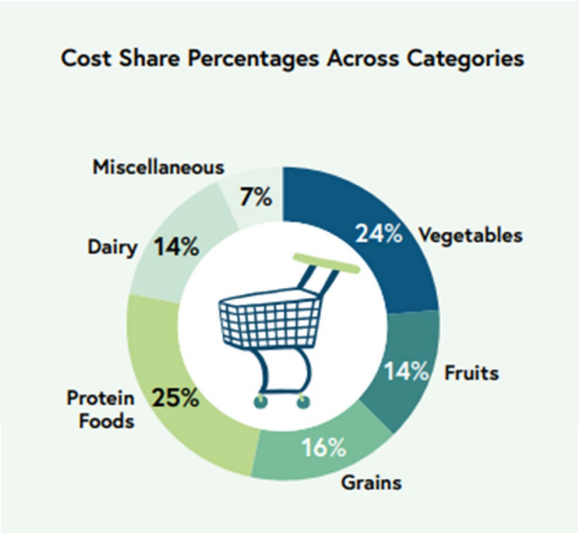
Transitioned to a Technical Document to Help Support Federal Program and Policy Needs

- The *Dietary Guidelines* serves as the cornerstone of Federal nutrition programs and policies.
  - For example, the Thrifty Food Plan describes the cost of a nutritious, practical, cost-effective diet. Serves as the basis for the Supplemental Nutrition Assistance Program (SNAP) maximum benefit allotments.
    - Required by law to reflect current dietary guidance.
  - Other examples: Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), Child Nutrition Programs (National School Breakfast/Lunch programs), and more!



Focus of Guidance has Evolved

1980: "These guidelines are intended for people who are already healthy."

2020: "The Dietary Guidelines are applicable to the overall U.S. population, including healthy individuals and people at risk of diet-related chronic conditions and diseases, such as cardiovascular disease, type 2 diabetes, and obesity. In addition, people living with a diet-related chronic illness can benefit from a healthy dietary pattern...the Dietary Guidelines is not intended to be a clinical guideline for treating chronic diseases."

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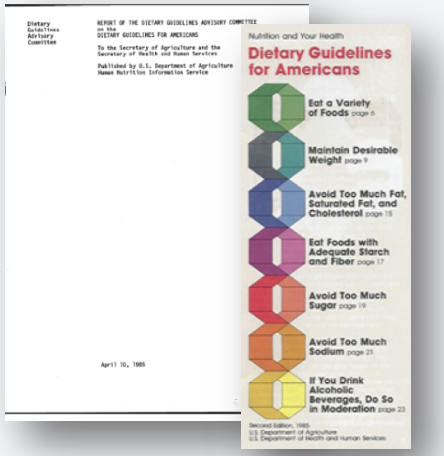
Each Committee's Review Builds upon the Previous Review, and Nutrition Science Continues to Grow and Strengthen



1985 DGAC Scientific Report:

- 9 members
- 28 pages
- 70+ references informed science-based advice, not including additional references in existing reports

2020 DGAC Scientific Report:

- 20 members
- 835 pages, plus 1,000+ pages of online supplementary material
- 2,000+ references informed science-based advice, not including additional references in existing systematic reviews or evidence from previous DGAC reports

The Elements that Make Up a Healthy Dietary Pattern have Remained Remarkably Consistent Over Time

- **Vegetables of all types**—dark green; red and orange; beans, peas, and lentils; starchy; and other vegetables
- **Fruits**, especially whole fruit
- **Grains**, at least half of which are whole grain
- **Dairy**, including fat-free or low-fat milk, yogurt, and cheese, and/or lactose-free versions and fortified soy beverages and yogurt as alternatives
- **Protein foods**, including lean meats, poultry, and eggs; seafood; beans, peas, and lentils; and nuts, seeds, and soy products
- **Oils**, including vegetable oils and oils in food, such as seafood and nuts

[**Note:** Amounts recommended vary based on many factors, including age, sex, height, weight, physical activity level, and pregnancy/lactation status.]

Limits are:

- **Added sugars**—Less than 10 percent of calories per day starting at age 2. Avoid foods and beverages with added sugars for those younger than age 2.
- **Saturated fat**—Less than 10 percent of calories per day starting at age 2.
- **Sodium**—Less than 2,300 milligrams per day—and even less for children younger than age 14.
- **Alcoholic beverages**—Adults of legal drinking age can choose not to drink or to drink in moderation by limiting intake to 2 drinks or less in a day for men and 1 drink or less in a day for women, when alcohol is consumed. Drinking less is better for health than drinking more. There are some adults who should not drink alcohol, such as women who are pregnant.

Healthy Eating has Been Shown to Promote Health and Reduce Risk of Chronic Disease Across the Lifespan

Birth Through 23 Months

- Lower risk of overweight and obesity
- Lower risk of type 1 diabetes
- Adequate iron status and lower risk of iron deficiency
- Lower risk of peanut allergy
- Lower risk of asthma

Children and Adolescents

- Lower adiposity
- Lower total and low-density lipoprotein (LDL) cholesterol

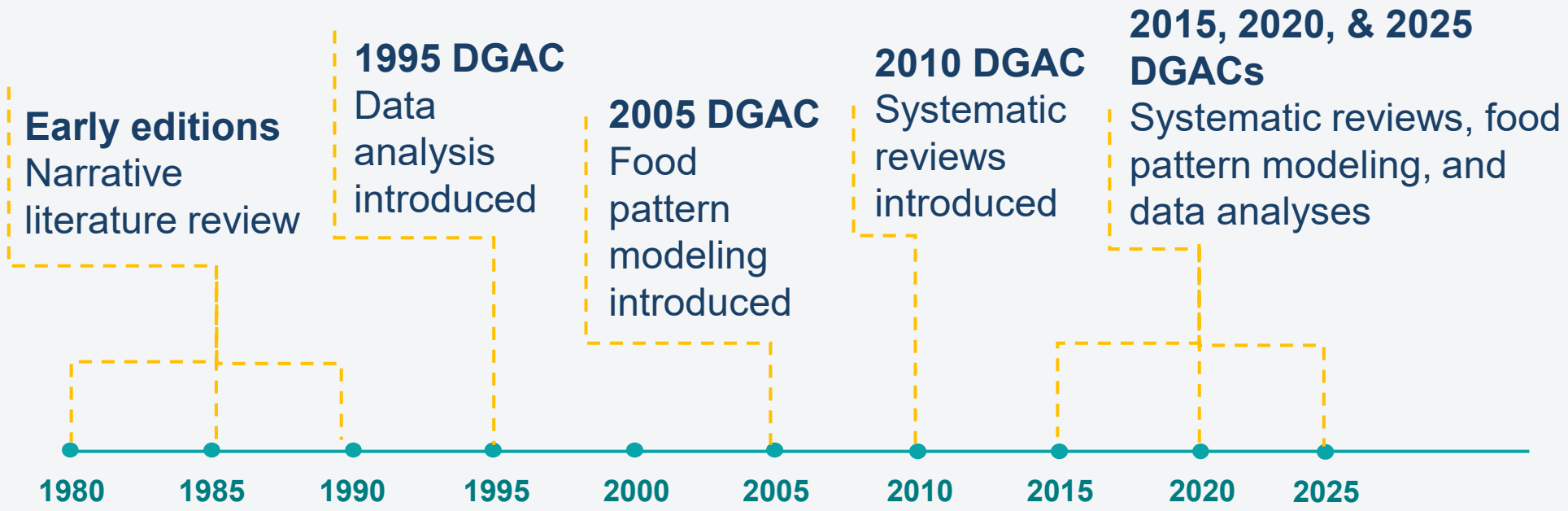
People Who Are Pregnant or Lactating

- Favorable cognitive development in the child
- Favorable folate status in women during pregnancy and lactation

Adults, Including Older Adults

- Lower risk of all-cause mortality
- Lower risk of cardiovascular disease
- Lower risk of cardiovascular disease mortality
- Lower total and LDL cholesterol
- Lower blood pressure
- Lower risk of obesity
- Lower body mass index, waist circumference, and body fat
- Lower risk of type 2 diabetes
- Lower risk of cancers of the breast, colon, and rectum
- Favorable bone health, including lower risk of hip fracture

Approaches Used to Review the Evidence Continue to Advance



Each round, the methods within each approach advance based on continuous quality advancement work, recommendations from the National Academies' reports, stakeholder engagement, and more.

For the 2025 DGAC, example advancements include: Systematic reviews with meta-analyses, assessing research availability, and advances in food pattern modeling

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Approaches to Examine the Evidence: Introduction

Systematic Review

A gold standard evidence synthesis project that answers a nutrition question of public health importance using systematic, transparent, rigorous, and protocol-driven methods to search for, evaluate, synthesize, and grade the strength of the eligible body of evidence.

Data Analysis

A collection of analyses that uses national data sets to describe the current health and dietary intakes of Americans. These data help make the *Dietary Guidelines* practical, relevant, and achievable.

Food Pattern Modeling

Food pattern modeling is a way to evaluate the impact of specific changes in amounts or types of foods and beverages in a dietary pattern on energy and nutrient needs while reflecting health-promoting patterns identified in systematic reviews. These food pattern modeling analyses inform USDA's development of relevant dietary patterns for the American population.

*The conclusions and advice the Committee comes to based on the evidence reviews are the distinct work of the Committee. Federal staff will support you to plan, conduct, and document your evidence review.

The approaches to examine the evidence are complementary

Example: Dietary Patterns

Systematic review: "...Strong and consistent evidence demonstrates that dietary patterns associated with decreased risk of CVD are characterized by higher consumption of vegetables, fruits, whole grains, low-fat dairy, and seafood, and lower consumption of red and processed meat, and lower intakes of refined grains, and sugar-sweetened foods and beverages relative to less healthy patterns. Regular consumption of nuts and legumes and moderate consumption of alcohol also are shown to be components of a beneficial dietary pattern in most studies..."

Data analysis: "Data from [What We Eat in America] show that the average [Healthy Eating Index] score in the U.S. population is 57 points out of a total of 100 points…"

Food pattern modeling:

Table D1.32. Composition of three USDA Food Patterns (Healthy U.S.-Style, Healthy Vegetarian, and Healthy Mediterranean-style) at the 2000 calorie level. Daily or weekly amounts from selected food groups, subgroups, and components.

Food group	Healthy US-style Pattern	Healthy Vegetarian Pattern	Healthy Med-style Pattern
Fruit	2 c per day	2 c per day	2 ½ c per day
Vegetables	2 ½ c per day	2 ½ c per day	2 ½ c per day
-Legumes	1 ½ c per wk	3 c per wk	1 ½ c per wk
Whole Grains	3 oz eq per day	3 oz eq per day	3 oz eq per day
Dairy	3 c per day	3 c per day	2 c per day
Protein Foods	5 ½ oz eq per day	3 ½ oz eq per day	6 ½ oz eq per day
--Meat	12 ½ oz eq/wk	--	12 ½ oz eq/wk
--Poultry	10 ½ oz eq/wk	--	10 ½ oz eq/wk
--Seafood	8 oz eq/wk	--	15 oz eq/wk
--Eggs	3 oz eq/wk	3 oz eq/wk	3 oz eq/wk
--Nuts/seeds	4 oz eq/wk	7 oz eq/wk	4 oz eq/wk
--Processed soy	½ oz eq/wk	8 oz eq/wk	½ oz eq/wk
Oils	27 g per day	27 g per day	27 g per day

Source: Food Pattern Modeling report: ***Appendix E-3.7 Developing Vegetarian and Mediterranean-style Food Patterns***

Advice to the Departments: Dietary Patterns

- "The overall body of evidence examined by the 2015 DGAC identifies that a healthy dietary pattern is higher in vegetables, fruits, whole grains, low- or non-fat dairy, seafood, legumes, and nuts; moderate in alcohol (among adults); lower in red and processed meats; and low in sugar-sweetened foods and drinks and refined grains."
- "On average, the U.S. diet is low in vegetables, fruit, and whole grains, and high in sodium, calories, saturated fat, refined grains, and added sugars."
- "It will take concerted, bold action…to achieve and maintain healthy dietary patterns... This will entail dramatic paradigm shifts…through which healthy lifestyle choices are easy, accessible, affordable and normative–both at home and away from home."

Example: Added sugars

Systematic review: "Strong and consistent evidence shows that intake of added sugars from food and/or sugar-sweetened beverages are associated with excess body weight in children and adults. The reduction of added sugars and sugar-sweetened beverages in the diet reduces body mass index (BMI) in both children and adults. Comparison groups with the highest versus the lowest intakes of added sugars in cohort studies were compatible with a recommendation to keep added sugars intake below 10 percent of total energy intake."

Data analysis: "…the current intake of added sugars still remains high at 268 calories, or 13.4 percent of total calories per day among the total population ages 1 year and older."

Food pattern modeling:

Table D6.1. Added sugars available in the USDA Food Patterns (Healthy U.S.-Style, Healthy Mediterranean-Style, and Healthy Vegetarian Patterns) in calories, teaspoons, and percent of total calories per day.*

CALORIE LEVEL	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200
	Empty calorie limits available for **added sugars** (assuming 45% empty calories from added sugars and 55% from solid fat)											
Healthy U.S.-style	68	50	50	54	77	122	126	158	171	180	212	275
Healthy Med-style	63	50	50	81	72	117	126	135	149	158	194	257
Healthy Vegetarian	77	77	81	81	81	131	131	158	158	158	185	234
Average	69	59	60	72	77	123	128	150	159	165	197	255
Average (tsp)	4.3	3.7	3.8	4.5	4.8	7.7	8.0	9.4	9.9	10.3	12.3	15.9
Healthy U.S.-style	7%	4%	4%	3%	4%	6%	6%	7%	7%	6%	7%	9%
Healthy Med-style	6%	4%	4%	5%	4%	6%	6%	6%	6%	6%	6%	8%
Healthy Vegetarian	8%	6%	6%	5%	5%	7%	6%	7%	6%	6%	6%	7%
Average	7%	5%	4%	5%	4%	6%	6%	6%	6%	6%	7%	8%

* See ***Part D. Chapter 1: Food and Nutrient Intakes, and Health: Current Status and Trends*** and Appendix E-3.7 for a full discussion of the food pattern modeling.

Advice to the Departments: Added Sugars

- “The DGAC encourages the consumption of healthy dietary patterns that are low in…added sugars. The goals for the general population are…a maximum of 10 percent of total calories from added sugars per day.”
- “Reduce added sugars…”

Example: Complementary Feeding, Iron

Systematic review: "Strong evidence suggests that consuming complementary foods and beverages that contain substantial amounts of iron, such as meats or iron-fortified cereal, helps maintain adequate iron status or prevent iron deficiency during the first year of life among infants with insufficient iron stores or breastfed infants who are not receiving adequate iron from another source. However, the benefit of these types of complementary foods and beverages for infants with sufficient iron stores, such as those consuming iron-fortified infant formula, is less evident..."

Data analysis: "…among infants ages 6 to 12 months, those who were fed infant formula or were mixed-fed typically met the Estimated Average Requirements (EAR) for iron, zinc, and protein (i.e., less than 7 percent had intakes less than the EAR). For infants fed human milk, the proportions with intakes less than the EAR were high for iron (77 percent), zinc (54 percent), and protein (27 percent)…"

Food pattern modeling: "…The modeling exercises for ages 6 to 12 months confirmed the challenges of meeting iron and zinc needs for infants fed human milk…The example combinations of complementary foods and beverages described by the Committee support consumption of fortified infant foods to meet nutrient adequacy for infants whose milk source is human milk (i.e., no infant formula)…"

Advice to the Departments: Complementary Feeding, Iron

- “Provide a variety of animal-source foods (meat, poultry, seafood, eggs, and dairy), fruits, and vegetables, nuts and seeds, and whole grain products, beginning at ages 6 to 12 months and continuing thereafter, to provide key nutrients, foster acceptance of a variety of nutritious foods, and build healthy dietary habits.”
- “For infants fed human milk at ages 6 to 12 months, consider providing iron-fortified infant cereals or similar products to ensure adequate iron intake.”

Considerations in Your Evidence Review

Considerations in Your Evidence Review

- The proposed topics and questions will be presented to the Committee tomorrow for Committee review, refinement, and prioritization.
  - Continue to refine patterns based on stage of life (e.g., special considerations by life stage), if/where appropriate and evidence is available.
  - Continue to explore variability in intakes and the range of possible healthful diets – The *Dietary Guidelines* provides a framework intended to be customized to individual needs and preferences, as well as the foodways of the diverse cultures in the United States.
  - Continue to conduct work through a health equity lens.
    - HHS and USDA aim to consider factors related to diversity, equity, and inclusion in every step – from the identification of scientific questions to the appointment of the Committee, throughout the Committee's scientific review and development of your scientific report, and in the drafting of the next edition of the *Dietary Guidelines*.
    - Several of you have expertise in health equity, and we propose establishing a cross-cutting working group to outline how health equity will be addressed in a consistent manner across the Committee's work.

Considerations in Your Evidence Review, continued

- Begin (and continue) with the end in mind.
  - How can this question inform our advice to the Departments?
  - Can this question/consideration inform guidance for the *Dietary Guidelines*?
- Provide advice to the Departments based on (1) the *Dietary Guidelines for Americans, 2020-2025* and (2) the preponderance of evidence in your review across questions and approaches.
  - "Based on our findings on A, B, and C, we recommend Y for the next edition of the *Dietary Guidelines*."
  - Summary and integration sections of your report are important for providing this advice.

Looking Ahead

- USDA has initiated work with a contractor to gain insights from Federal and nonfederal experts on the topic of systems science in the *Dietary Guidelines* process. A report is expected by the end of 2023 to inform future work in this space.
- HHS and USDA continue to consider recommendations in the National Academies' reports on the process to develop the *Dietary Guidelines*.
- HHS and USDA are monitoring topics and research for future editions of the *Dietary Guidelines*.
  - Precision nutrition, microbiome, and more
- HHS and USDA welcome and encourage you to identify research recommendations and topics for future consideration in your report.

Thank You!

Questions and Discussion

Nutrition Evidence Systematic Review

Meeting 1 of the 2025 Dietary Guidelines Advisory Committee | February 9, 2023

Julie Obbagy, PhD, RD, Branch Chief

Nutrition Evidence Systematic Review

USDA, Food and Nutrition Service, Center for Nutrition Policy and Promotion

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Presentation Objectives

1. Introduction to USDA's Nutrition Evidence Systematic Review (NESR)
2. Overview of NESR's systematic review methodology
3. Evaluating research availability to inform systematic review question prioritization
   - New systematic review questions
   - Existing NESR systematic review questions
4. Accessing information about NESR and the Committee's systematic review work

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NESR supports the CNPP mission:

Improve the health and well-being of Americans by developing and promoting dietary guidance that links scientific research to the nutrition needs of consumers

NESR

Systematic Reviews
Rapid Review
Evidence Scans

Dietary Guidelines for Americans,
Thrifty Food Plan,
and other nutrition policy efforts

Health and well-being
of Americans

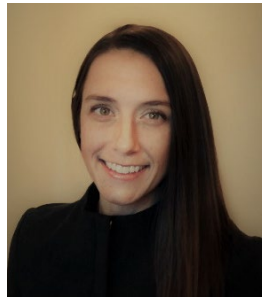
NESR is a team of systematic review scientists with advanced degrees in fields like nutrition, public health, and library science.

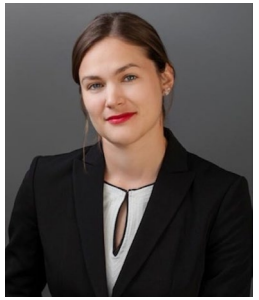

Julie Obbagy, PhD, RDN
Branch Chief


Charlotte Bahnfleth, PhD


Emily Callahan, MS


Natasha Cole, PhD, MPH, RD


Laural English, PhD


Amanda Fultz, PhD, RD


Julia Kim, PhD, MPH, RD


Brittany Kingshipp, PhD


Shabnam Momin, PhD

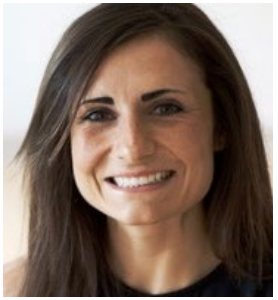

Julie Nevins, PhD


Kripa Raghavan, DrPH, MPH, MSc


Nicole Reigh, PhD


Sara Scinto-Madonich, MS


Joanne Spahn, MS, RDN


Ali Webster, PhD, RD


Betsy Becker, PhD


Kevin Bokay, MHRM, MLIS


Molly Higgins, MLIS


Gisela Butera, MLIS, MEd
(NIH/NLM)


Nancy Terry, MLS
(NIH/NLM)

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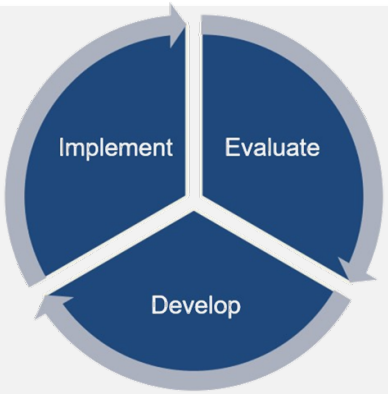
NESR evaluates and refines its processes through a continuous quality advancement (CQA) initiative.



NESR CQA involves:

- Ongoing staff training and development
- Engagement with external groups on the forefront of systematic review and nutrition science methods
- Expert evaluation of NESR's methods
- Investment in technological infrastructure

Developed new methodology:

- Continuous evidence monitoring
- Rapid reviews
- Evidence scans
- Using Existing Non-NESR Reviews
- Meta-analysis

Updated existing methodology:

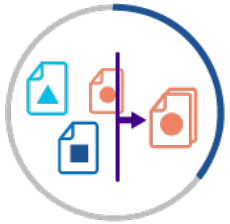
- Inclusion and exclusion criteria
- Standard outcomes
- Risk of bias
- Synthesis without meta-analysis
- Grading the strength of evidence
- Updating NESR reviews

Enhanced transparency and extended our reach:

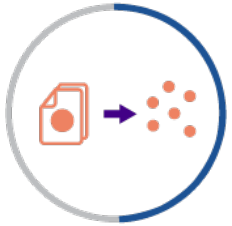
- Updated templates (protocols, presentations, reports)
- DOI numbers for reports
- NCBI bookshelf
- Peer-reviewed publications
- NESR.usda.gov methodology and protocol content

NESR systematic review methodology

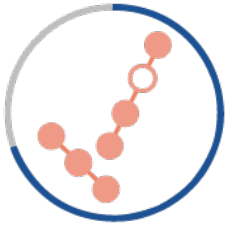
Develop a protocol



Search for and screen articles

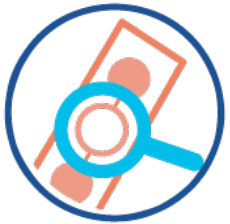


Extract data and assess risk of bias



Synthesize the evidence

Answer the question and grade the evidence



Recommend future research

NESR systematic reviews are collaborative

Develop a protocol

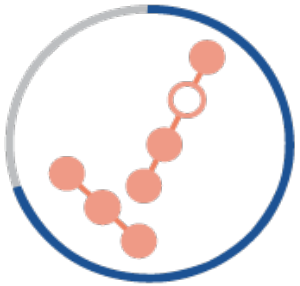
Committee
(facilitated and documented by NESR analysts)

Search for and screen articles

NESR Librarians and Analysts
(with input from the Committee)

Extract data and assess risk of bias

NESR Analysts
(with input from the Committee)



Synthesize the evidence

Answer the question and grade evidence

Committee
(facilitated and documented by NESR analysts)

Recommend future research

Public comments received and considered throughout

USDA Nutrition Evidence Systematic Review's collaborative approach for conducting systematic reviews: promoting diversity of expertise while managing potential conflicts of interest. Obbagy J, Raghavan R, Cole NC, English LK, Higgins M, Spahn JM, Bahnfleth CL, Callahan E, Fultz A, Kim JH, Kingshipp BJ, Nevins JEH, Scinto-Madonich SR,, Webster A, Stoody E.2023 Frontiers in Nutrition (in press)

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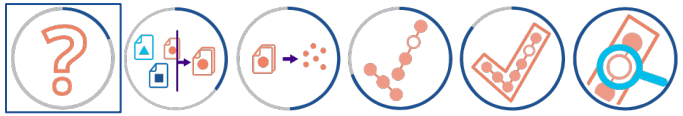
The Committee develops a systematic review protocol.

- A protocol is a **prespecified** plan for how NESR's methodology will be used to conduct a systematic review.
  - The protocol includes an analytic framework, synthesis plan, and inclusion and exclusion criteria, which are tailored to the question.
  - The Committee develops systematic review protocols using a process that is facilitated and documented by NESR analysts, considering input from Federal and public stakeholders.

- Protocols are posted online and discussed at public meetings to provide transparency, guard against selective reporting, and facilitate public comment.

(Updated protocol webpage for 2025 at NESR.usda.gov)



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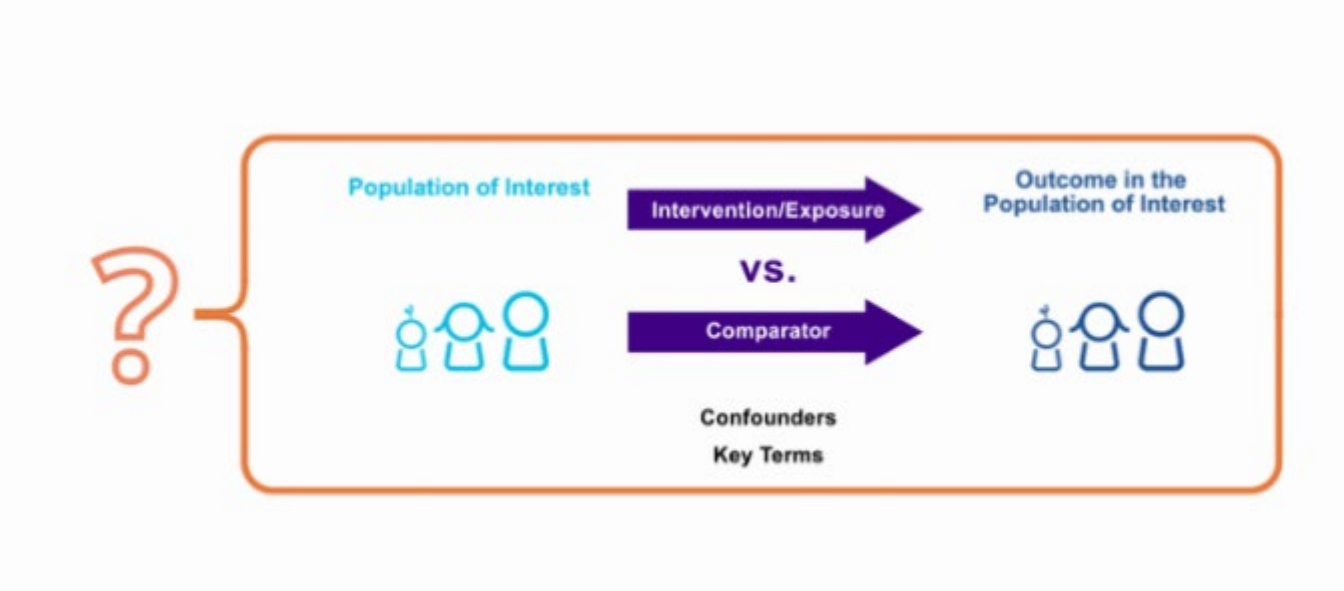
An analytic framework defines the core elements of the systematic review question, and a synthesis plan outlines how the evidence will be organized.



- **P**opulation
- **I**ntervention and/or exposure
- **C**omparator
- **O**utcomes
- Key confounders
- Synthesis plan *(New for 2025)*
- Definitions of key terms

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An example of an analytic framework and synthesis plan *(Updated format for 2025)*

Analytic framework for the systematic review question: What is the relationship between dietary patterns consumed and bone health?

Population	***Intervention/ exposure***	***Comparator***	***Outcomes***	***Key confounders***

Infants and toddlers (birth up to 24 months)
Children and adolescents (2 up to 19 years)
Adults and older adults (19 years or older)
	Consumption of a dietary pattern	Different dietary pattern(s)
		
		Different adherence/ consumption levels to the same dietary pattern
			• Bone mass (in infants and toddlers; children and adolescents; adults and older adults):
			  • Bone mineral density
			  • Bone mineral content
			• Osteoporosis (in adults and older adults)
			• Osteopenia (in adults and older adults)
			• Rickets (in infants and toddlers; children and adolescents)
			• Fracture (in children and adolescents; adults and older adults)
				• Sex
				• Age
				• Socioeconomic status
				• Anthropometry
				• Physical activity
				• Smoking
				• Vitamin D status
				• Calcium supplements
				• Estrogen replacement

Synthesis organization

- **Population/Life stage at intervention/exposure:** Infants and toddlers; Children and adolescents; Adults and older adults
  - **Outcome:** Intermediate outcomes (e.g., bone mass); Endpoint outcomes (i.e., Osteoporosis; Osteopenia; Rickets; Fracture)

Key definitions: Dietary patterns – The quantities, proportions, variety or combination of different foods, drinks, and nutrients (when available) in diets, and the frequency with which they are habitually consumed.

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Inclusion and exclusion criteria provide an objective, consistent, and transparent structure for determining which articles to include in each NESR systematic review.

The Committee establishes criteria to ensure that the evidence reviewed is:

- Applicable to the U.S. population of interest,
- Relevant to Federal public health nutrition policies and programs, and
- Rigorous and strong from a scientific perspective.

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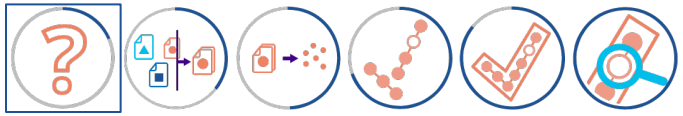
Criteria are established for a variety of study characteristics, and NESR has standard criteria for certain characteristics.

Every review has criteria for the following:

- Study design
- Publication date
- Publication status
- Language
- Country
- Population:
  - Study participants (humans only)
  - Life stage
  - Health status
- Intervention/exposure
- Comparator
- Outcome(s)

Additional criteria may be established, as appropriate. Examples include:

- Population:
  - Analytic approach (e.g., sibling pairs)
- Study duration
- Size of study groups
- Confounders
- Temporality
- Sources of foods, beverages, or nutrients



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Standard criteria used in NESR systematic reviews

	Inclusion Criteria	Exclusion Criteria
Study design	• Randomized controlled trials • Non-randomized controlled trials • Prospective cohort studies • Retrospective cohort studies • Nested case-control studies • Mendelian randomization studies	• Uncontrolled trials • Case-control studies • Cross-sectional studies • Ecological studies • Narrative reviews, systematic reviews, and meta-analyses • Modeling and simulation studies
Publication status	• Peer-reviewed articles published in research journals	• Non-peer-reviewed articles, unpublished data or manuscripts, pre-prints, reports, editorials, retracted articles, and conference abstracts or proceedings
Language	• Published in English	• Not published in English
Country	• Studies conducted in countries classified as high or very high on the Human Development Index the year(s) the intervention/exposure data were collected	• Studies conducted in countries classified as medium or low on the Human Development Index the year(s) the intervention/exposure data were collected

Standard criteria used in NESR systematic reviews continued…

	Inclusion Criteria	Exclusion Criteria

Population: Health status*
 	
(*these criteria are tailored depending on life stage)
	• Studies that exclusively enroll participants not diagnosed with a disease
	• Studies that enroll some participants:
	  ○ diagnosed with a disease;
	  ○ born preterm, with low birth weight, and/or small for gestational age;
	  ○ with severe undernutrition, failure to thrive/underweight, stunting, or wasting;
	  ○ and/or with the outcome of interest
		• Studies that exclusively enroll participants:
		  ○ diagnosed with a disease;
		  ○ hospitalized for an illness, injury, or surgery;
		  ○ born preterm, with low birth weight, and/or small for gestational age;
		  ○ with severe undernutrition, failure to thrive/underweight, stunting, or wasting;
		  ○ who became pregnant using Assisted Reproductive Technologies;
		  ○ with multiple gestation pregnancies;
		  ○ with the outcome of interest (i.e., studies that aim to treat participants who have already been diagnosed with the outcome of interest);
		  ○ and/or pre- or post-bariatric surgery

NESR librarians develop a comprehensive literature search strategy to identify the most complete body of evidence

- NESR librarians develop, implement, and document literature search strategies.
- The search strategy is developed with input from NESR analysts using the systematic review protocol developed by the expert group.
- The search strategy is peer-reviewed by another NESR or Federal librarian.

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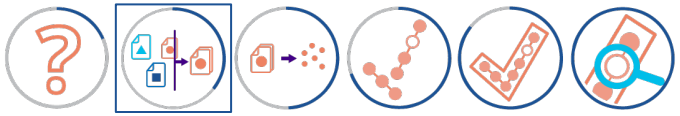
A literature search strategy includes bibliographic databases, search terms, and search refinements, such as search filters.

Electronic databases commonly used in NESR reviews:

- PubMed/MEDLINE
- Embase
- Cochrane Central Register of Controlled Trials (CENTRAL)
- CINAHL

- A manual search is done to identify articles not captured in the electronic database search.

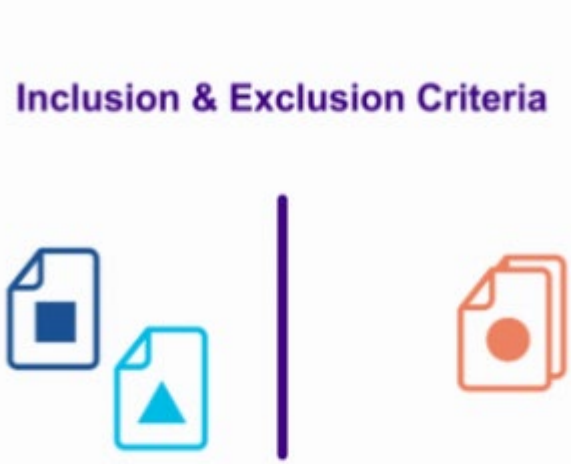


Database: PubMed, Provider: U.S. National Library of Medicine

Search #	Concept	String
#1	Dietary Patterns	"dietary pattern*"[tiab] OR "diet pattern*"[tiab] OR "eating pattern*"[tiab] OR "food pattern*"[tiab] OR "diet quality"[tiab] OR "dietary quality"[tiab] OR "diet variety"[tiab] OR "dietary variety"[tiab] OR "varied diet"[tiab] OR "dietary guideline*"[tiab] OR "dietary recommendation*"[tiab] OR "dietary intake*"[tiab] OR "eating style*"[tiab] OR "Diet, Mediterranean"[Mesh] OR "Mediterranean Diet*"[tiab] OR "Dietary Approaches To Stop Hypertension"[Mesh] OR "Dietary Approaches To Stop Hypertension Diet*"[tiab] OR "DASH diet*"[tiab] OR "Diet, Gluten-Free"[Mesh] OR "Gluten Free diet*"[tiab] OR "prudent diet*"[tiab] OR "Diet, Paleolithic"[Mesh] OR "Paleolithic Diet*"[tiab] OR "Diet, Vegetarian"[Mesh] OR "vegetarian diet*"[tiab] OR "vegan diet*"[tiab] OR "Diet, Healthy"[Mesh] OR "healthy diet*"[tiab] OR "plant based diet*"[tiab] OR "Diet, Western"[Mesh] OR "western diet*"[tiab] OR "Nordic Diet*"[tiab] OR "Okinawan diet*"[tiab] OR "Diet, Fat-Restricted"[Mesh] OR "Diet, High-Fat"[Mesh] OR "high-fat diet*"[tiab] OR "low fat diet*"[tiab] OR "Diet, Sodium-Restricted"[Mesh] OR "low-sodium diet*"[tiab] OR "low salt diet*"[tiab] OR (("Guideline Adherence"[Mesh] OR "guideline adherence*"[tiab])AND (diet[tiab] OR dietary[tiab] OR food[tiab] OR beverage*[tiab] OR nutrition*[tiab])) OR "diet score*"[tiab] OR "diet quality score*"[tiab] OR "diet quality index*"[tiab] OR kidmed[tiab] OR "diet index*"[tiab] OR "dietary index*"[tiab] OR "food score*"[tiab] OR MedDietScore[tiab] OR "healthy eating index"[tiab]
#2	Bone Health	"Bone Density"[Mesh] OR “bone density”[tiab] OR bone mineral density[tiab] OR "Bone Development"[Mesh] OR “bone development"[tiab] OR "Fractures, Bone"[Mesh] OR "Bone Diseases"[Mesh] OR bone disease*[tiab] OR bone turnover[tiab] OR bone loss[tiab] OR osteoporosis[tiab] OR osteopen*[tiab] OR osteitis[tiab] OR osteolysis[tiab] OR "Rickets"[Mesh] OR Rickets[tiab] OR bone mineral*[tiab] OR “bone mass”[tiab] OR bone health*[tiab] OR bone demineral*[tiab] OR "Bone Remodeling"[Mesh] OR bone strength[tiab] OR bone formation[tiab] OR bone accretion[tiab] OR bone mineral accretion[tiab] OR ((bone[tiab] OR bones[tiab] OR "Bone and Bones"[Mesh]) AND (fracture*[tiab] OR remodel*[tiab] OR ossification[tiab] OR resorption[tiab] OR BMC[tiab] OR BMD[tiab] OR "Biomarkers"[Mesh] OR biomarker*[tiab]))
#3	#1 AND #2	
#4	Limits	#3 NOT ("Animals"[Mesh] NOT ("Animals"[Mesh] AND "Humans"[Mesh])) NOT (editorial[ptyp] OR comment[ptyp] OR commentary[tiab] OR news[ptyp] OR letter[ptyp] OR review[ptyp] OR systematic review[ptyp] OR systematic review[ti] OR meta-analysis[ptyp] OR meta-analysis[ti] OR meta-analyses[ti] OR protocol[ti] OR protocols[ti] OR retracted publication[ptyp] OR retraction of publication[ptyp] OR retraction of publication[tiab] OR retraction notice[ti] OR “retracted publication”[ti] OR "Congress"[Publication Type] OR "Consensus Development Conference"[Publication Type] OR “conference abstract*”[tiab] OR “conference proceeding*”[tiab] OR “conference paper*”[tiab] OR "practice guideline"[ptyp] OR "practice guideline"[ti]) Language: English; Publication date: November 15 2019 - present

NESR analysts screen all search results using the Committee's inclusion and exclusion criteria.

- Two NESR analysts independently screen all search results using a web-based tool called DistillerSR.
- Articles are screened at 3 levels: title, abstract, and full text
- Studies that meet *all* of the criteria are included in the systematic review.



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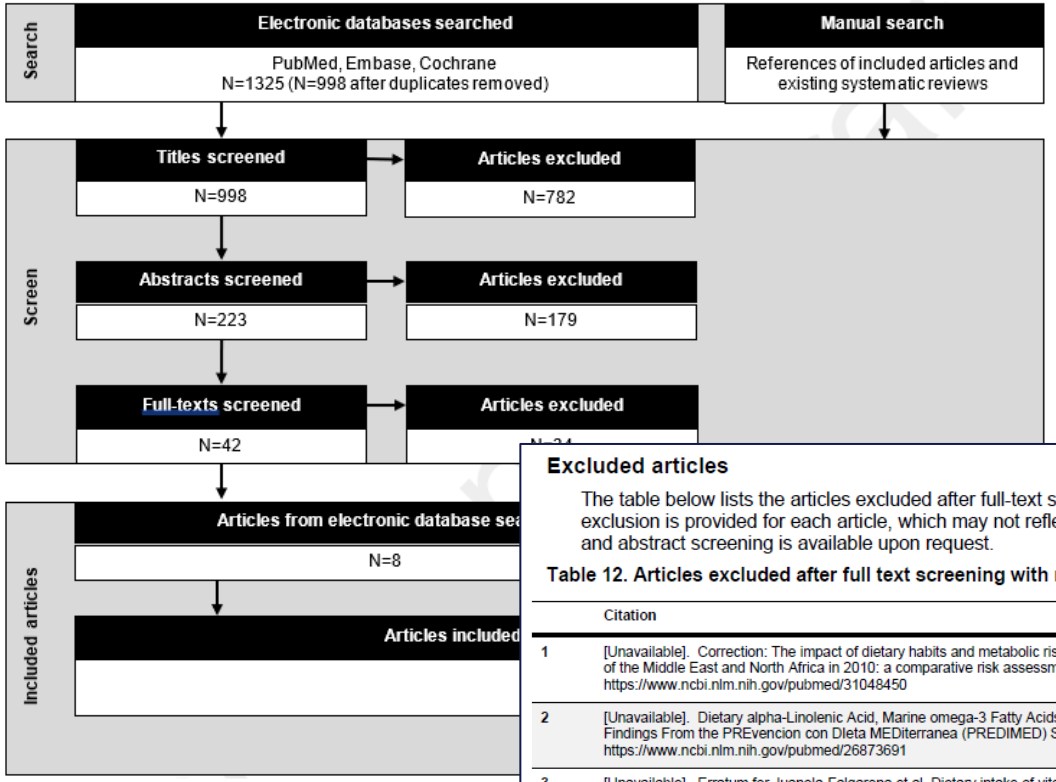
The literature search strategy and screening results are documented.

Search #	Concept	String
#1	Dietary Patterns	"dietary pattern*"[tiab] OR "diet pattern*"[tiab] C quality"[tiab] OR "diet variety"[tiab] OR "dietary recommendation*"[tiab] OR "dietary intake*"[tia Diet*"[tiab] OR "Dietary Approaches To Stop H "DASH diet*"[tiab] OR "Diet, Gluten-Free"[Mesl OR "Paleolithic Diet*"[tiab] OR "Diet, Vegetaria OR "healthy diet*"[tiab] OR "plant based diet*"["Okinawan diet*"[tiab] OR "Diet, Fat-Restricted "Diet, Sodium-Restricted"[Mesh] OR "low-sodiu "guideline adherence*"[tiab])AND (diet[tiab] OR score*"[tiab] OR "diet quality score*"[tiab] OR " index*"[tiab] OR "food score*"[tiab] OR MedDie
#2	Bone Health	"Bone Density"[Mesh] OR "bone density"[tiab] (development"[tiab] OR "Fractures, Bone"[Mesh bone loss[tiab] OR osteoporosis[tiab] OR ostec OR bone mineral*[tiab] OR "bone mass"[tiab] C bone strength[tiab] OR bone formation[tiab] OR OR "Bone and Bones"[Mesh]) AND (fracture*[t BMD[tiab] OR "Biomarkers"[Mesh] OR biomark
#3	#1 AND #2	
#4	Limits	#3 NOT ("Animals"[Mesh] NOT ("Animals"[Mes NOT (editorial[ptyp] OR comment[ptyp] OR commentary[tiab] OR news[ptyp] OR letter[ptyp] OR r review[ptyp] OR systematic review[ti] OR meta-analysis[ptyp] OR meta-analysis[ti] OR meta-anal protocols[ti] OR retracted publication[ptyp] OR retraction of publication[ptyp] OR retraction of publ OR "retracted publication"[ti] OR "Congress"[Publication Type] OR "Consensus Development Cor "conference abstract*"[tiab] OR "conference proceeding*"[tiab] OR "conference paper*"[tiab] OR " "practice guideline"[ti]) Language: English; Publication date: November 15 2019 - present



Excluded articles

The table below lists the articles excluded after full-text screening for this systematic review question. At least one reason for exclusion is provided for each article, which may not reflect all possible reasons. Information about articles excluded after title and abstract screening is available upon request.

Table 12. Articles excluded after full text screening with rationale for exclusion

	Citation	Rationale
1	[Unavailable]. Correction: The impact of dietary habits and metabolic risk factors on cardiovascular and diabetes mortality in countries of the Middle East and North Africa in 2010: a comparative risk assessment analysis. BMJ Open. 2019. 9:e006385corr1 https://www.ncbi.nlm.nih.gov/pubmed/31048450	Study design, Publication Status
2	[Unavailable]. Dietary alpha-Linolenic Acid, Marine omega-3 Fatty Acids, and Mortality in a Population With High Fish Consumption: Findings From the PREvencion con DIeta MEDiterranea (PREDIMED) Study. J Am Heart Assoc. 2016. 5:#pages# https://www.ncbi.nlm.nih.gov/pubmed/26873691	Study Design, Intervention/Exposure, Publication Status
3	[Unavailable]. Erratum for Juanola-Falgarona et al. Dietary intake of vitamin K is inversely associated with mortality risk. J Nutr 2014;144:743-50. J Nutr. 2016. 146:653 https://www.ncbi.nlm.nih.gov/pubmed/26933059	Study Design, Intervention/Exposure, Publication Status
4	[Unavailable]. Vegetarian diets aid longevity, reduce risk of ACM. But results are more significant in men than women. Further research is needed to determine why. Duke Med Health News. 2013. 19:4-5 https://www.ncbi.nlm.nih.gov/pubmed/23984452	Study design, Publication Status
5	Abrahams, Z, McHiza, Z, Steyn, NP. Diet and mortality rates in Sub-Saharan Africa: stages in the nutrition transition. BMC Public Health. 2011. 11:801 https://www.ncbi.nlm.nih.gov/pubmed/21995618	Intervention/Exposure, Outcome
6	Abu-Saad, K, Novikov, I, Gimpelevitz, I, Benderly, M, Alpert, G, Goldbourt, U, Kalter-Leibovici, O. Micronutrient intake and adherence to DASH diet are associated with incident major adverse cardiovascular events and ACM in a bi-ethnic population. European heart journal. 2017. 38:1120â€□ https://www.cochranelibrary.com/central/doi/10.1002/central/CN-01468739/full	Study design, Publication Status
7	Afshin, A, Micha, R, Khatibzadeh, S, Fahimi, S, Shi, P, Powles, J, Singh, G, Yakoob, MY, Abdollahi, M, Al-Hooti, S, Farzadfar, F, Houshiar-Rad, A, Hwalla, N, Koksal, E, Musaiger, A, Pekcan, G, Sibai, AM, Zaghloul, S, Danaei, G, Ezzati, M, Mozaffarian, D. The impact of dietary habits and metabolic risk factors on cardiovascular and diabetes mortality in countries of the Middle East and North Africa in 2010: a comparative risk assessment analysis. BMJ Open. 2015. 5:e006385 https://www.ncbi.nlm.nih.gov/pubmed/25995236	Outcome, Country
8	Agarwal, E, Ferguson, M, Banks, M, Vivanti, A, Batterham, M, Bauer, J, Capra, S, Isenring, E. Malnutrition, poor food intake, and adverse healthcare outcomes in non-critically ill obese acute care hospital patients. Clin Nutr. 2019. 38:759-766 https://www.ncbi.nlm.nih.gov/pubmed/29559233	Intervention/Exposure, Health Status

NESR analysts extract all relevant data from each included study.

- Key data relevant to the systematic review question is extracted using a standardized data extraction form.
- Extracted data is summarized in evidence tables and figures.

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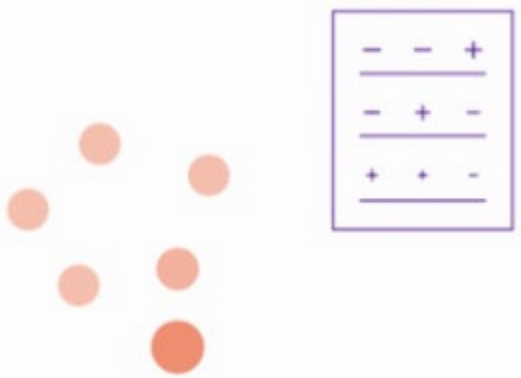
The types of data that are commonly extracted

- Study design, study or cohort name
- Country
- Sample size
- Participant characteristics
- Dietary intervention or exposure examined, dietary assessment methods
- Outcome assessment methods
- Analysis, confounders accounted for
- Results
- Funding source

Waijers et al, 2006[127] PCS, European Prospective Investigation into Cancer and Nutrition (EPIC)-Elderly project Netherlands Analytic N: 5427 Attrition: 15% Sex: 100% female Race/ethnicity: NR SES: Education: ~33.3% None or primary school, ~25.7% Technical school, ~29.7% Secondary school, ~10.3% University degree Alcohol intake: mean 7.3 g	**Dietary pattern(s):** Adherence to three dietary patterns identified using factor analysis (PCA) as follows: • 'Mediterranean-like' - High consumption of pasta and rice, sauces, fish, and vegetables in combination with vegetable oils, wine, and other cereals (potatoes, bread, and margarine, contributed negatively to this component) • 'Traditional Dutch dinner' - High consumption of meat, potatoes, vegetables, eggs, and alcoholic beverages. Low consumption of dairy products, sweets, and pastries. • 'Healthy Traditional' - High consumption of vegetables, fruit, dairy products, potatoes, and legumes, and also nonalcoholic beverages. Low consumption in intakes of butter and alcoholic beverages. **Dietary assessment methods:** 178-item validated semi quantitative FFQ at baseline, age ≥60 y (~58.7% age 60-64y, ~41.3% age 65-70y) **Outcome assessment methods:** Data on vital status, including emigration or death were obtained through the National Population Database.	**Significant:** 'Healthy Traditional' dietary pattern and ACM over ~8.2y f/u with T1, HR: 1, ref: • T3 HR: 1.25, 95% CI: 0.52, 0.95 **Non-significant:** 'Mediterranean-like' dietary pattern and ACM over ~8.2y f/u with T1, HR: 1, ref: • T2 HR: 0.91 NS • T3 HR: 0.84 NS 'Traditional Dutch Dinner' dietary pattern and ACM over ~8.2y f/u with T1, HR: 1, ref: • T2 HR: 1.00 NS • T3 HR: 1.25 NS 'Healthy Traditional' dietary pattern and ACM over ~8.2y f/u with T1, HR: 1, ref: • T2 HR: 0.81 NS	**Key confounders accounted for:** Sex: Design; Age; Race/ethnicity: Design; 100% Dutch; SES: Education; Alcohol: Part of dietary pattern; Physical activity; Anthropometry: BMI; waist-to-hip ratio; Smoking **Other:** Total energy intake; Diabetes **Limitations:** • Small number of total deaths in the study (n=277) • Food groups selected for analyses may not optimally represent dietary choices of Dutch persons	Higher adherence (T3 vs. T1) to the 'Healthy Traditional', with higher intake of vegetables, fruit, dairy products, potatoes, and legumes, and non-alcoholic beverages; lower intakes of butter and alcoholic beverages, dietary pattern was associated with significantly lower risk of ACM over ~8 years f/u. No significant associations were observed between adherence to the 'Mediterranean-like' and 'Traditional Dutch dinner' dietary patterns and ACM. **Funding:** Quality of Life and Management of Living resources Program of the European Commission

NESR analysts assess the risk of bias of each included study



- Risk of bias is the likelihood of a systematic error or deviation from the truth in results. Biases can lead to underestimation or overestimation of the true effect of an intervention/exposure on an outcome. *(Cochrane Handbook, 2019)*
- Risk of bias tools consistently assess how each included study was designed and conducted
- This assessment provides critical information that is considered when synthesizing the evidence.

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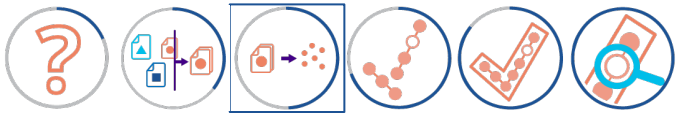
NESR uses study design-specific tools to assess risk of bias and results are documented.

- Cochrane risk-of-bias tool for randomized trials (RoB 2.0)
- Risk of Bias in Non-randomized Studies-of-Interventions tool (ROBINS-I)
- Risk of Bias in Non-randomized Studies-of-Exposures tool (ROBINS-E) *(Updated tool for 2025)*

  - ✓ Randomization
  - ✓ Selection of participants
  - ✓ Confounding
  - ✓ Classification of interventions or exposures
  - ✓ Deviations from intended interventions or exposures
  - ✓ Missing data
  - ✓ Outcome measurement
  - ✓ Selection of the reported result

Article	Confounding	Selection of participants	Classification of exposures	Deviations from intended exposures	Missing data	Outcome measurement	Selection of the reported result
Bauer, 2012[13]	MODERATE	LOW	LOW	MODERATE	LOW	MODERATE	MODERATE
Dunn, 2015[1]	MODERATE	MODERATE	LOW	LOW	MODERATE	MODERATE	MODERATE
Forrester, 2018[2]	SERIOUS	LOW	SERIOUS	LOW	NO INFORMATION	MODERATE	MODERATE
Gough, 2019[3]	MODERATE	LOW	LOW	LOW	MODERATE	MODERATE	MODERATE
Hamrick, 2011[4]	SERIOUS	LOW	LOW	LOW	LOW	MODERATE	MODERATE
Kim, 2020[5]	MODERATE	LOW	LOW	LOW	LOW	MODERATE	MODERATE
Monsivais, 2014[12]	SERIOUS	LOW	LOW	LOW	MODERATE	MODERATE	MODERATE
Raschke, 2012[6]	SERIOUS	LOW	LOW	SERIOUS	LOW	MODERATE	MODERATE
Restrepo, 2020[7]	SERIOUS	MODERATE	MODERATE	SERIOUS	MODERATE	MODERATE	MODERATE
Senia, 2017[8]	MODERATE	LOW	LOW	LOW	LOW	MODERATE	MODERATE
Sliwa, 2015[9]	SERIOUS	LOW	MODERATE	SERIOUS	MODERATE	MODERATE	MODERATE
Smith, 2014[10]	MODERATE	LOW	LOW	LOW	MODERATE	MODERATE	MODERATE
Wolfson, 2019[11]	MODERATE	LOW	LOW	LOW	MODERATE	MODERATE	MODERATE



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The Committee synthesizes the evidence from all of the included studies.

- Evidence synthesis is the process by which evidence from multiple studies is described, compared and contrasted, and combined.

- Evidence synthesis is guided by the synthesis plan developed as part of the protocol, and identifies:
  - Overarching themes or key concepts from the findings
  - Similarities and differences between studies
  - Factors that impact the relationships being examined

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Meta-analysis *(New for 2025)*

- Meta-analysis is a tool for evidence synthesis that uses quantitative analysis to combine data from individual studies.
- NESR plans to conduct a limited number of systematic reviews with meta-analyses with the 2025 Committee.
- NESR has established methods and procedures for conducting meta-analyses and has on-going support from a biostatistician.

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The Committee develops conclusion statement(s) that answer the systematic review question.

- A conclusion statement is one or more summary statement carefully constructed to answer to the systematic review question.
- A conclusion statement may also state that there is not enough evidence to answer the question.

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The Committee grades the strength of the evidence underlying each conclusion statement.

Grades are assigned based on an assessment of the following:

- Consistency
- Precision
- Risk of bias
- Directness
- Generalizability

*Study design is also considered

Perspective: USDA Nutrition Evidence Systematic Review Methodology: Grading the Strength of Evidence in Nutrition- and Public Health–Related Systematic Reviews. Spill M, English LK, Raghavan R, Callahan E, Güngör D, Kingshipp B, Spahn J, Stoody EE, Obbagy J. Advances in Nutrition. 2021; 13:982-991. DOI: 10.1093/advances/nmab147.

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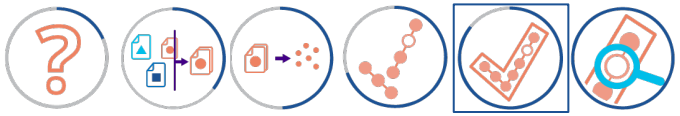
The grade communicates the Committee's level of certainty in the evidence.

Strong	The level of certainty in the conclusion is strong, such that if new evidence emerges, modifications to the conclusion are unlikely to be required.
Moderate	The level of certainty in the conclusion is moderate, such that if new evidence emerges, modifications to the conclusion may be required.
Limited	The level of certainty in the conclusion is limited, such that if new evidence emerges, modifications to the conclusion are likely to be required.
Grade Not Assignable	A conclusion statement cannot be drawn due to either a lack of evidence, or evidence that has severe limitations.



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The Committee makes recommendations for designing, implementing, and reporting future research.

Gaps and limitations are used to develop research recommendations that describe the research, data, and methodological advances that are needed to strengthen the body of evidence on a particular topic.

Strengthening Research that Answers Nutrition Questions of Public Health Importance: Leveraging the Experience of the USDA Nutrition Evidence Systematic Review Team. Obbagy J, Raghavan R, English LK, Spill MK, Bahnfleth CL, Bates M, Callahan E, Cole NC, Gungor D, Kim JH, Kingshipp BJ, Nevins JEH, Scinto-Madonich SR, Spahn JM, Venkatramanan S, Stoody E. J Nutr. 2022. nxac140, https://doi.org/10.1093/jn/nxac140.

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Research Availability *(New for 2025)*

- Research availability can help the Committee prioritize their systematic review questions by:
  - determining whether there is sufficient evidence available to conduct/update a review
  - estimating resource needs and timelines.

- The approach used depends on whether the question is “new” or “existing.”

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Evaluating research availability for NEW systematic review questions

1. Conduct a search for existing non-NESR reviews
    - The Committee determines whether to use any eligible non-NESR reviews to answer the question

2. Conduct an evidence scan to estimate the volume and characteristics of primary research available
    - The Committee determines whether to conduct the review, or document a research recommendation

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Identifying eligible, existing non-NESR reviews to answer new systematic review questions

- Using an existing non-NESR systematic review to replace a new NESR review:
  - Prevent duplication of effort
  - Preserve resources

- Existing non-NESR systematic reviews need to address the right question, and be as rigorous and transparent as NESR systematic reviews

- Our methods and criteria were informed by other organizations:
  - Nordic Nutrition Recommendations
  - Agency for Healthcare Research and Quality
  - Health Canada
  - Australian Dietary Guidelines

For new systematic review questions, NESR will search for eligible existing reviews using the criteria below

Inclusion Criteria	Exclusion Criteria
Sufficiently aligns with a topic or question defined in an *a priori* NESR protocol	Does not sufficiently align with a topic or question defined in an *a priori* NESR protocol
Published since 2020	Published prior to 2020
Commissioned by a national food or health authority, or an international scientific body	Commissioned, sponsored, or funded by industry or an entity with a business or ideological interest
Clearly describes the systematic review methodology and adequately reports results	Does not clearly describe the systematic review methodology or inadequately reports results
Provides an evidence grade for the strength of the evidence underlying the finding	Does not provide an evidence grade for the strength of the evidence underlying the finding
Rated as high quality (based on AMSTAR 2*)	Rated as critically low, low, or moderate quality (based on AMSTAR 2*)

* Shea BJ, Reeves BC, Wells G, et al. AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both. *BMJ*. Sep 21 2017;358:j4008.doi:10.1136/bmj.j4008.

NESR Evidence Scan methodology

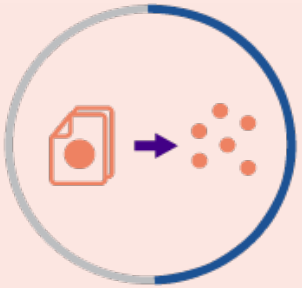
Evidence Scan: An exploratory evidence description project in which systematic methods are used to search for and describe the volume and characteristics of evidence available on a nutrition question or topic of public health importance.

Develop a protocol

- Guided by the purpose of the evidence scan
- Exploratory or draft in nature

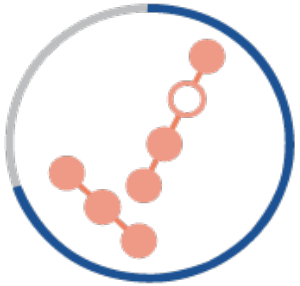
Search for and screen articles

- Fewer databases
- Shorter date range



Extract data and assess risk of bias

- *Minimal* data extraction
- No extraction of results
- No risk of bias assessment



Synthesize the evidence

- Describe the volume and characteristics of evidence
- No synthesis of evidence

Answer the question and grade evidence

- No conclusion statement or grading of evidence

Recommend future research

- Acknowledge gaps, considerations for future reviews

Evaluating research availability for EXISTING systematic review questions

1. Conduct continuous evidence monitoring (CEM)
    - The Committee determines whether to update the review, or use the existing review as-is

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NESR Continuous Evidence Monitoring (CEM) methodology

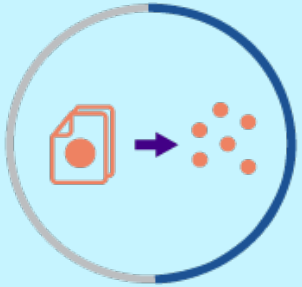
Continuous Evidence Monitoring: An evidence gathering process in which established systematic review protocols are used to periodically search for, screen, and prepare evidence for future systematic reviews.

Develop a protocol

Previous Committee or expert group

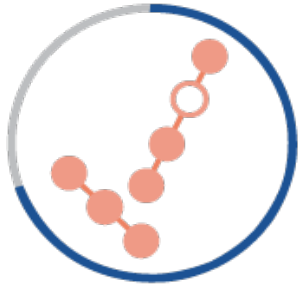
Search for and screen articles

NESR Librarians and Analysts



Extract data and assess risk of bias

NESR Analysts



Synthesize the evidence

Answer the question and grade evidence

Recommend future research

Committee

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Updating NESR Reviews *(Updated for 2025)*

Standard NESR methodology is used to search for, evaluate, analyze, and synthesize newly published evidence with the evidence included in the existing NESR systematic review. The resulting conclusion statements and grades reflect the full body of evidence.

- Option 1: Synthesize evidence from existing NESR review and new search as one body of evidence.
- Option 2: Synthesize new evidence and assess the new evidence as it relates to the existing evidence.

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NESR values transparency and information about us and the Committee's work will be accessible on our website: NESR.usda.gov

- 2025 Dietary Guidelines Advisory Committee
  - https://nesr.usda.gov/2025-dietary-guidelines-advisory-committee-systematic-reviews
- NESR Methodology
  - https://nesr.usda.gov/methodology-overview
- Protocols (forthcoming)
  - https://nesr.usda.gov/protocols
- Publications
  - https://nesr.usda.gov/publications

Thank you!

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https://nesr.usda.gov
https://www.Dietaryguidelines.gov
https://www.myplate.gov/

Food Pattern Modeling

TusaRebecca Pannucci, PhD, MPH, RD

Branch Chief, Nutrition and Economic Analysis
USDA Center for Nutrition Policy and Promotion

February 9, 2023

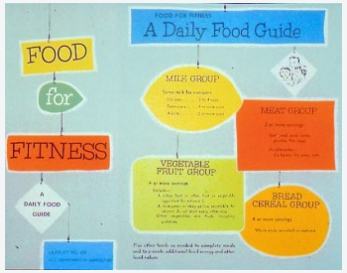
DietaryGuidelines.gov

Presentation Overview

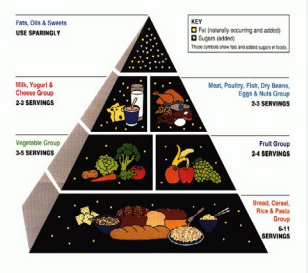
1. Introduction to USDA Dietary Patterns
2. Overview of USDA's Food Pattern Modeling (FPM) methodology
3. Proposed FPM questions and analyses
4. Accessing information about FPM and the Committee's FPM work

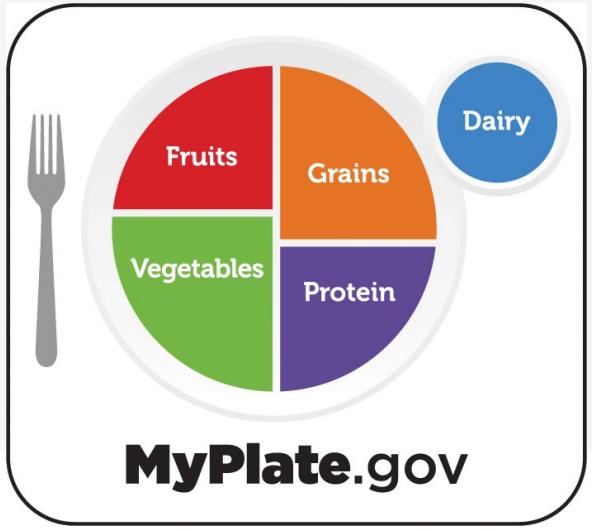
History


NATIONAL WARTIME NUTRITION GUIDE
U.S. NEEDS US STRONG
EAT THE BASIC 7 EVERY DAY


A Daily Food Guide
FOOD
for
FITNESS
MILK GROUP
MEAT GROUP
VEGETABLE FRUIT GROUP
BREAD CEREAL GROUP


BREAD
CEREAL
MILK
CHEESE
The Hassle-Free Daily Food Guide


Fats, Oils & Sweets
USE SPARINGLY
KEY
Milk, Yogurt & Cheese Group
2-3 SERVINGS
Meat, Poultry, Fish, Dry Beans, Eggs & Nuts Group
2-3 SERVINGS
Vegetable Group
3-5 SERVINGS
Fruit Group
2-4 SERVINGS
Bread, Cereal, Rice & Pasta Group
6-11 SERVINGS


Fruits
Grains
Dairy
Vegetables
Protein
MyPlate.gov

USDA Dietary Patterns

Provide flexible frameworks of food group recommendations based on:

- Systematic review evidence
- Dietary Reference Intakes

Features of the USDA Dietary Patterns

- Considers population intakes
- Modeled with nutrient-dense forms
- Meets DRIs
- Meets DGA recommendations

Healthy U.S.-Style Dietary Pattern for Ages 2 and Older, With Daily or Weekly Amounts From Food Groups, Subgroups, and Components

CALORIE LEVEL OF PATTERN[a]	1,000	1,200	1,400	1,600	1,800	2,000	2,200	2,400	2,600	2,800	3,000	3,200
FOOD GROUP OR SUBGROUP[b]	Daily Amount[c] of Food From Each Group (Vegetable and protein foods subgroup amounts are per week.)											
Vegetables (cup eq/day)	1	1 ½	1 ½	2	2 ½	2 ½	3	3	3 ½	3 ½	4	4
	Vegetable Subgroups in Weekly Amounts											
Dark-Green Vegetables (cup eq/wk)	½	1	1	1 ½	1 ½	1 ½	2	2	2 ½	2 ½	2 ½	2 ½
Red and Orange Vegetables (cup eq/wk)	2 ½	3	3	4	5 ½	5 ½	6	6	7	7	7½	7½
Beans, Peas, Lentils (cup eq/wk)	½	½	½	1	1½	1½	2	2	2 ½	2 ½	3	3
Starchy Vegetables (cup eq/wk)	2	3 ½	3 ½	4	5	5	6	6	7	7	8	8
Other Vegetables (cup eq/wk)	1 ½	2 ½	2 ½	3 ½	4	4	5	5	5 ½	5 ½	7	7
Fruits (cup eq/day)	1	1	1 ½	1 ½	1 ½	2	2	2	2	2 ½	2 ½	2 ½
Grains (ounce eq/day)	3	4	5	5	6	6	7	8	9	10	10	10
Whole Grains (ounce eq/day)[d]	1 ½	2	2 ½	3	3	3	3 ½	4	4 ½	5	5	5
Refined Grains (ounce eq/day)	1 ½	2	2 ½	2	3	3	3 ½	4	4 ½	5	5	5
Dairy (cup eq/day)	2	2 ½	2 ½	3	3	3	3	3	3	3	3	3
Protein Foods (ounce eq/day)	2	3	4	5	5	5 ½	6	6 ½	6 ½	7	7	7
	Protein Foods Subgroups in Weekly Amounts											
Meats, Poultry, Eggs (ounce eq/wk)	10	14	19	23	23	26	28	31	31	33	33	33
Seafood (ounce eq/wk)[e]	2-3[f]	4	6	8	8	8	9	10	10	10	10	10
Nuts, Seeds, Soy Products (ounce eq/wk)	2	2	3	4	4	5	5	5	5	6	6	6
Oils (grams/day)	15	17	17	22	24	27	29	31	34	36	44	51
Limit on Calories for Other Uses (kcal/day)[g]	130	80	90	100	140	240	250	320	350	370	440	580
Limit on Calories for Other Uses (%/day)	13%	7%	6%	6%	8%	12%	11%	13%	13%	13%	15%	18%

DGA DietaryGuidelines.gov

USDA

USDA Dietary Patterns: Healthy Vegetarian & Healthy Mediterranean-Style

Healthy Vegetarian Dietary Pattern for Ages 2 and Older, With Daily or Weekly Amounts From Food Groups, Subgroups, and Components

CALORIE LEVEL OF PATTERN[a]	1,000	1,200	1,400	1,600	1,800	2,000	2,200	2,400	2,600	2,800	3,000	3,200
FOOD GROUP OR SUBGROUP[b]	Daily Amount[c] of Food From Each Group (Vegetable and protein foods subgroup amounts[b] are per week.)											
Vegetables (cup eq/day)	**1**	**1 ½**	**1 ½**	**2**	**2 ½**	**2 ½**	**3**	**3**	**3 ½**	**3 ½**	**4**	**4**
	Vegetable Subgroups in Weekly Amounts											
Dark-Green Vegetables (cup eq/wk)	½	1	1	1 ½	1 ½	1 ½	2	2	2 ½	2 ½	2 ½	2 ½
Red and Orange Vegetables (cup eq/wk)	2 ½	3	3	4	5 ½	5½	6	6	7	7	7½	7½
Beans, Peas, Lentils (cup eq/wk)[d]	½	½	½	1	1 ½	1 ½	2	2	2 ½	2 ½	3	3
Starchy Vegetables (cup eq/wk)	2	3 ½	3 ½	4	5	5	6	6	7	7	8	8
Other Vegetables (cup eq/wk)	1 ½	2 ½	2 ½	3 ½	4	4	5	5	5 ½	5 ½	7	7
Fruits (cup eq/day)	**1**	**1**	**1 ½**	**1 ½**	**1 ½**	**2**	**2**	**2**	**2**	**2 ½**	**2 ½**	**2 ½**
Grains (ounce eq/day)	**3**	**4**	**5**	**5 ½**	**6 ½**	**6 ½**	**7 ½**	**8 ½**	**9 ½**	**10 ½**	**10 ½**	**10 ½**
Whole Grains (ounce eq/day)	1 ½	2	2 ½	3	3 ½	3 ½	4	4 ½	5	5 ½	5 ½	5 ½
Refined Grains (ounce eq/day)	1 ½	2	2 ½	2 ½	3	3	3 ½	4	4 ½	5	5	5
Dairy (cup eq/day)	**2**	**2 ½**	**2 ½**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Protein Foods (ounce eq/day)	**1**	**1 ½**	**2**	**2 ½**	**3**	**3 ½**	**3 ½**	**4**	**4 ½**	**5**	**5 ½**	**6**
	Protein Foods Subgroups in Weekly Amounts											
Eggs (ounce eq/wk)	2	3	3	3	3	3	3	3	3	4	4	4
Beans, Peas, Lentils (cup eq/wk)[d]	1	2	4	4	6	6	6	8	9	10	11	12
Soy Products (ounce eq/wk)	2	3	4	6	6	8	8	9	10	11	12	13
Nuts, Seeds (ounce eq/wk)	2	2	3	5	6	7	7	8	9	10	12	13
Oils (grams/day)	**15**	**17**	**17**	**22**	**24**	**27**	**29**	**31**	**34**	**36**	**44**	**51**
Limit on Calories for Other Uses (kcal/day)[e]	**170**	**140**	**160**	**150**	**150**	**250**	**290**	**350**	**350**	**350**	**390**	**500**
Limit on Calories for Other Uses (%/day)	17%	12%	11%	9%	8%	13%	13%	15%	13%	13%	13%	16%

Healthy Mediterranean-Style Dietary Pattern for Ages 2 and Older, With Daily or Weekly Amounts From Food Groups, Subgroups, and Components

CALORIE LEVEL OF PATTERN[a]	1,000	1,200	1,400	1,600	1,800	2,000	2,200	2,400	2,600	2,800	3,000	3,200
FOOD GROUP OR SUBGROUP[b]	Daily Amount[c] of Food From Each Group (Vegetable and protein foods subgroup amounts are per week.)											
Vegetables (cup eq/day)	**1**	**1 ½**	**1 ½**	**2**	**2 ½**	**2 ½**	**3**	**3**	**3 ½**	**3 ½**	**4**	**4**
	Vegetable Subgroups in Weekly Amounts											
Dark-Green Vegetables (cup eq/wk)	½	1	1	1 ½	1 ½	1 ½	2	2	2 ½	2 ½	2 ½	2 ½
Red and Orange Vegetables (cup eq/wk)	2 ½	3	3	4	5 ½	5 ½	6	6	7	7	7 ½	7 ½
Beans, Peas, Lentils (cup eq/wk)	½	½	½	1	1 ½	1 ½	2	2	2 ½	2 ½	3	3
Starchy Vegetables (cup eq/wk)	2	3 ½	3 ½	4	5	5	6	6	7	7	8	8
Other Vegetables (cup eq/wk)	1 ½	2 ½	2 ½	3 ½	4	4	5	5	5 ½	5 ½	7	7
Fruits (cup eq/day)	**1**	**1**	**1 ½**	**2**	**2**	**2 ½**	**2 ½**	**2 ½**	**2 ½**	**3**	**3**	**3**
Grains (ounce eq/day)	**3**	**4**	**5**	**5**	**6**	**6**	**7**	**8**	**9**	**10**	**10**	**10**
Whole Grains (ounce eq/day)[d]	1 ½	2	2 ½	3	3	3	3 ½	4	4 ½	5	5	5
Refined Grains (ounce eq/day)	1 ½	2	2 ½	2	3	3	3 ½	4	4 ½	5	5	5
Dairy (cup eq/day)[d]	**2**	**2 ½**	**2 ½**	**2**	**2**	**2**	**2**	**2 ½**	**2 ½**	**2 ½**	**2 ½**	**2 ½**
Protein Foods (ounce eq/day)	**2**	**3**	**4**	**5 ½**	**6**	**6 ½**	**7**	**7 ½**	**7 ½**	**8**	**8**	**8**
	Protein Foods Subgroups in Weekly Amounts											
Meats, Poultry, Eggs (ounce eq/wk)	10	14	19	23	23	26	28	31	31	33	33	33
Seafood (ounce eq/wk)[e]	3	4	6	11	15	15	16	16	17	17	17	17
Nuts, Seeds, Soy Products (ounce eq/wk)	2	2	3	4	4	5	5	5	5	6	6	6
Oils (grams/day)	**15**	**17**	**17**	**22**	**24**	**27**	**29**	**31**	**34**	**36**	**44**	**51**
Limit on Calories for Other Uses (kcal/day)[f]	**130**	**80**	**90**	**120**	**140**	**240**	**250**	**280**	**300**	**330**	**400**	**540**
Limit on Calories for Other Uses (%/day)	13%	7%	6%	8%	8%	12%	11%	12%	12%	12%	13%	17%

DietaryGuidelines.gov

USDA Dietary Patterns: 12 through 23 months

Healthy U.S.-Style Dietary Pattern for Toddlers Ages 12 Through 23 Months Who Are No Longer Receiving Human Milk or Infant Formula, With Daily or Weekly Amounts From Food Groups, Subgroups, and Components

CALORIE LEVEL OF PATTERN[a]	700	800	900	1,000
FOOD GROUP OR SUBGROUP[b,c]	Daily Amount of Food From Each Group[d] (Vegetable and protein foods subgroup amounts are per week.)			
Vegetables (cup eq/day)	⅔	¾	1	1
	Vegetable Subgroups in Weekly Amounts			
Dark-Green Vegetables (cup eq/wk)	1	⅓	½	½
Red and Orange Vegetables (cup eq/wk)	1	1 ¾	2 ½	2 ½
Beans, Peas, Lentils (cup eq/wk)	¾	⅓	½	½
Starchy Vegetables (cup eq/wk)	1	1 ½	2	2
Other Vegetables (cup eq/wk)	¾	1 ¼	1 ½	1 ½
Fruits (cup eq/day)	½	¾	1	1
Grains (ounce eq/day)	1 ¾	2 ¼	2 ½	3
Whole Grains (ounce eq/day)	1 ½	2	2	2
Refined Grains (ounce eq/day)	¼	¼	½	1
Dairy (cup eq/day)	1 ⅔	1 ¾	2	2
Protein Foods (ounce eq/day)	2	2	2	2
	Protein Foods Subgroups in Weekly Amounts			
Meats, Poultry (ounce eq/wk)	8 ¾	7	7	7 ¾
Eggs (ounce eq/wk)	2	2 ¾	2 ¼	2 ¼
Seafood (ounce eq/wk)[e]	2-3	2-3	2-3	2-3
Nuts, Seeds, Soy Products (ounce eq/wk)	1	1	1 ¼	1 ¼
Oils (grams/day)	9	9	8	13

Healthy Vegetarian Dietary Pattern for Toddlers Ages 12 Through 23 Months Who Are No Longer Receiving Human Milk or Infant Formula, With Daily or Weekly Amounts From Food Groups, Subgroups, and Components

CALORIE LEVEL OF PATTERN[a]	700	800	900	1,000
FOOD GROUP OR SUBGROUP[b,c]	Daily Amount of Food From Each Group[d] (Vegetable and protein foods subgroup amounts are per week.)			
Vegetables (cup eq/day)	1	1	1	1
	Vegetable Subgroups in Weekly Amounts			
Dark-Green Vegetables (cup eq/wk)	½	½	½	½
Red and Orange Vegetables (cup eq/wk)	2 ½	2 ½	2 ½	2 ½
Beans, Peas, Lentils (cup eq/wk)	¾	¾	¾	¾
Starchy Vegetables (cup eq/wk)	2	2	2	2
Other Vegetables (cup eq/wk)	1 ½	1 ½	1 ½	1 ½
Fruits (cup eq/day)	½	¾	1	1
Grains (ounce eq/day)	1 ¾	2 ¼	2 ¾	3
Whole Grains (ounce eq/day)	1 ¼	1 ¾	2	2
Refined Grains (ounce eq/day)	½	½	¾	1
Dairy (cup eq/day)	1 ½	1 ¾	1 ¾	2
Protein Foods (ounce eq/day)	1	1	1	1
	Protein Foods Subgroups in Weekly Amounts			
Eggs (ounce eq/wk)	3 ½	3 ½	3 ½	3 ½
Nuts, Seeds, Soy Products (ounce eq/wk)	4	4	4	4
Oils (grams/day)	9	8 ½	10	15

DietaryGuidelines.gov

USDA Dietary Patterns: Food Groups

Healthy U.S.-Style Dietary Pattern for Ages 2 and Older, With Daily or Weekly Amounts From Food Groups, Subgroups, and Components

CALORIE LEVEL OF PATTERN[a]	1,000	1,200	1,400	1,600	1,800	2,000	2,200	2,400	2,600	2,800	3,000	3,200
FOOD GROUP OR SUBGROUP[b]	Daily Amount[c] of Food From Each Group (Vegetable and protein foods subgroup amounts are per week.)											
Vegetables (cup eq/day)	**1**	**1 ½**	**1 ½**	**2**	**2 ½**	**2 ½**	**3**	**3**	**3 ½**	**3 ½**	**4**	**4**
	Vegetable Subgroups in Weekly Amounts											
Dark-Green Vegetables (cup eq/wk)	½	1	1	1 ½	1 ½	1 ½	2	2	2 ½	2 ½	2 ½	2 ½
Red and Orange Vegetables (cup eq/wk)	2 ½	3	3	4	5 ½	5 ½	6	6	7	7	7½	7½
Beans, Peas, Lentils (cup eq/wk)	½	½	½	1	1½	1½	2	2	2 ½	2 ½	3	3
Starchy Vegetables (cup eq/wk)	2	3 ½	3 ½	4	5	5	6	6	7	7	8	8
Other Vegetables (cup eq/wk)	1 ½	2 ½	2 ½	3 ½	4	4	5	5	5 ½	5 ½	7	7
Fruits (cup eq/day)	**1**	**1**	**1 ½**	**1 ½**	**1 ½**	**2**	**2**	**2**	**2**	**2 ½**	**2 ½**	**2 ½**
Grains (ounce eq/day)	**3**	**4**	**5**	**5**	**6**	**6**	**7**	**8**	**9**	**10**	**10**	**10**
Whole Grains (ounce eq/day)[d]	1 ½	2	2 ½	3	3	3	3 ½	4	4 ½	5	5	5
Refined Grains (ounce eq/day)	1 ½	2	2 ½	2	3	3	3 ½	4	4 ½	5	5	5
Dairy (cup eq/day)	**2**	**2 ½**	**2 ½**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Protein Foods (ounce eq/day)	**2**	**3**	**4**	**5**	**5**	**5 ½**	**6**	**6 ½**	**6 ½**	**7**	**7**	**7**
	Protein Foods Subgroups in Weekly Amounts											
Meats, Poultry, Eggs (ounce eq/wk)	10	14	19	23	23	26	28	31	31	33	33	33
Seafood (ounce eq/wk)[e]	2-3[f]	4	6	8	8	8	9	10	10	10	10	10
Nuts, Seeds, Soy Products (ounce eq/wk)	2	2	3	4	4	5	5	5	5	6	6	6
Oils (grams/day)	**15**	**17**	**17**	**22**	**24**	**27**	**29**	**31**	**34**	**36**	**44**	**51**
Limit on Calories for Other Uses (kcal/day)[g]	**130**	**80**	**90**	**100**	**140**	**240**	**250**	**320**	**350**	**370**	**440**	**580**
Limit on Calories for Other Uses (%/day)	13%	7%	6%	6%	8%	12%	11%	13%	13%	13%	15%	18%

DGA DietaryGuidelines.gov

USDA

USDA Dietary Patterns: Oils & Calorie Limits

Healthy U.S.-Style Dietary Pattern for Ages 2 and Older, With Daily or Weekly Amounts From Food Groups, Subgroups, and Components

CALORIE LEVEL OF PATTERN[a]	1,000	1,200	1,400	1,600	1,800	2,000	2,200	2,400	2,600	2,800	3,000	3,200
FOOD GROUP OR SUBGROUP[b]	Daily Amount[c] of Food From Each Group (Vegetable and protein foods subgroup amounts are per week.)											
Vegetables (cup eq/day)	**1**	**1 ½**	**1 ½**	**2**	**2 ½**	**2 ½**	**3**	**3**	**3 ½**	**3 ½**	**4**	**4**
	Vegetable Subgroups in Weekly Amounts											
Dark-Green Vegetables (cup eq/wk)	½	1	1	1 ½	1 ½	1 ½	2	2	2 ½	2 ½	2 ½	2 ½
Red and Orange Vegetables (cup eq/wk)	2 ½	3	3	4	5 ½	5 ½	6	6	7	7	7½	7½
Beans, Peas, Lentils (cup eq/wk)	½	½	½	1	1½	1½	2	2	2 ½	2 ½	3	3
Starchy Vegetables (cup eq/wk)	2	3 ½	3 ½	4	5	5	6	6	7	7	8	8
Other Vegetables (cup eq/wk)	1 ½	2 ½	2 ½	3 ½	4	4	5	5	5 ½	5 ½	7	7
Fruits (cup eq/day)	**1**	**1**	**1 ½**	**1 ½**	**1 ½**	**2**	**2**	**2**	**2**	**2 ½**	**2 ½**	**2 ½**
Grains (ounce eq/day)	**3**	**4**	**5**	**5**	**6**	**6**	**7**	**8**	**9**	**10**	**10**	**10**
Whole Grains (ounce eq/day)[d]	1 ½	2	2 ½	3	3	3	3 ½	4	4 ½	5	5	5
Refined Grains (ounce eq/day)	1 ½	2	2 ½	2	3	3	3 ½	4	4 ½	5	5	5
Dairy (cup eq/day)	**2**	**2 ½**	**2 ½**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Protein Foods (ounce eq/day)	**2**	**3**	**4**	**5**	**5**	**5 ½**	**6**	**6 ½**	**6 ½**	**7**	**7**	**7**
	Protein Foods Subgroups in Weekly Amounts											
Meats, Poultry, Eggs (ounce eq/wk)	10	14	19	23	23	26	28	31	31	33	33	33
Seafood (ounce eq/wk)[e]	2-3[f]	4	6	8	8	8	9	10	10	10	10	10
Nuts, Seeds, Soy Products (ounce eq/wk)	2	2	3	4	4	5	5	5	5	6	6	6
Oils (grams/day)	**15**	**17**	**17**	**22**	**24**	**27**	**29**	**31**	**34**	**36**	**44**	**51**
Limit on Calories for Other Uses (kcal/day)[g]	**130**	**80**	**90**	**100**	**140**	**240**	**250**	**320**	**350**	**370**	**440**	**580**
Limit on Calories for Other Uses (%/day)	13%	7%	6%	6%	8%	12%	11%	13%	13%	13%	15%	18%

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USDA

Translating the Science into Guidelines

Data Analysis

Analysis that use national data sets to help us understand the current health and dietary intakes of Americans. These data help make our advice practical, relevant, and achievable.

Food Pattern Modeling

Analysis that helps us understand how changes to the amounts or types of foods and beverages in a pattern impact meeting nutrient needs across the U.S. population.

NESR Systematic Review

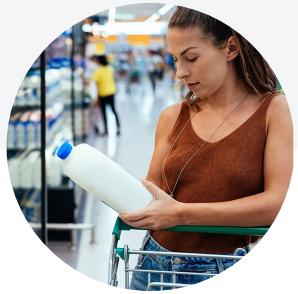
Research project that answers a question on diet and health by searching for, evaluating, and synthesizing all relevant, peer-reviewed studies.

Dietary Guidelines for Americans

USDA's Food Pattern Modeling

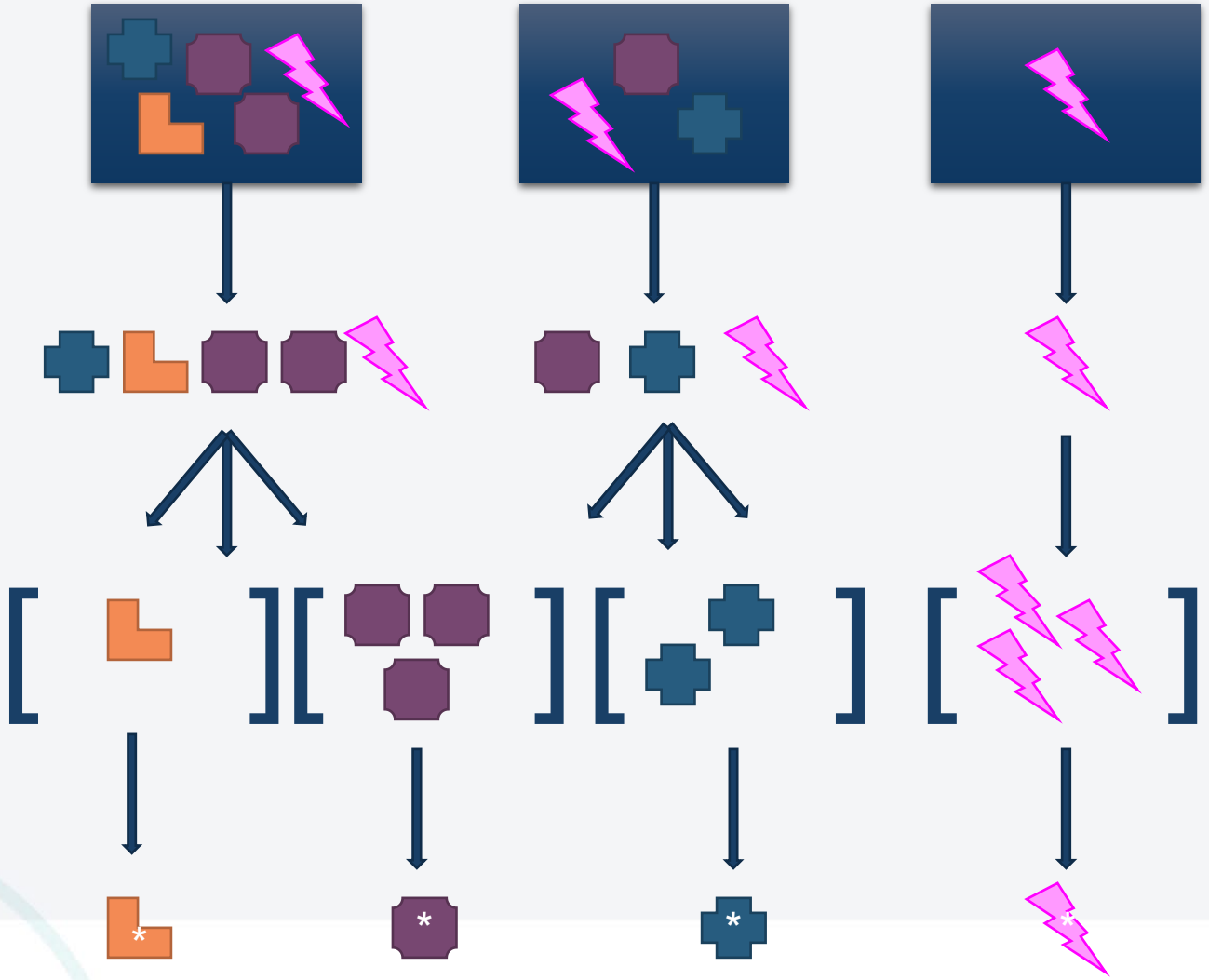
- a way to evaluate the impact of specific changes in amounts or types of foods and beverages in a dietary pattern on energy and nutrient needs while reflecting health-promoting patterns identified in systematic reviews.

- inform USDA's development of relevant dietary patterns for the American population.


Food Pattern Modeling: Modifiable elements

Development of Item Clusters



FOODS: All foods consumed from WWEIA, NHANES 2017-2018

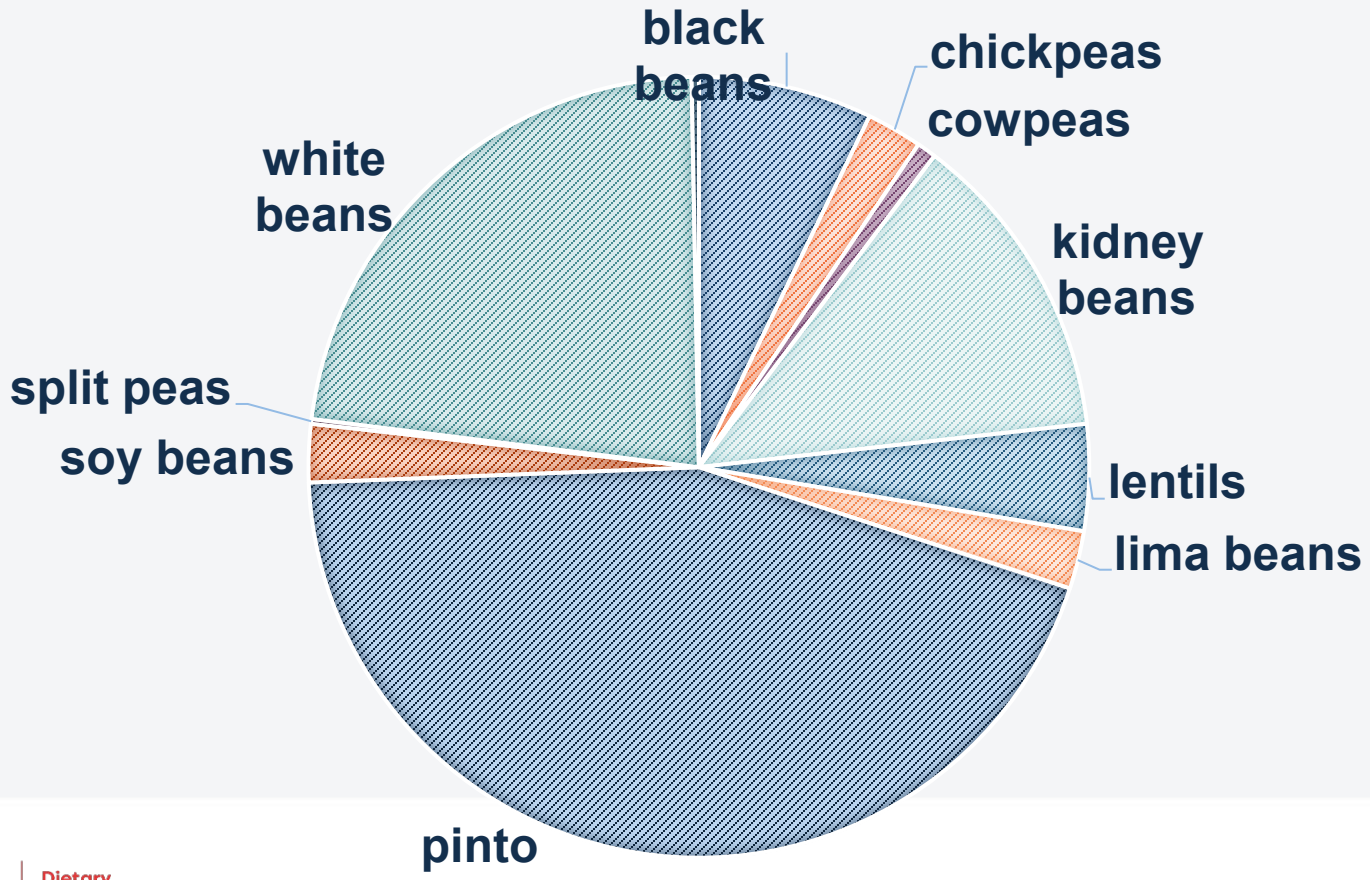
INGREDIENTS: Foods disaggregated into ingredients contributing to each food group or subgroup

ITEM CLUSTERS: Ingredients aggregated into ~ 400 “item clusters”

REPRESENTATIVE FOOD: For each item cluster, one *nutrient-dense* representative food is selected

Calculating Food Group and Subgroup Nutrient Profiles

Nutrient profile = sum (% contribution of each item cluster x nutrients in the representative food)



Food Pattern Modeling: Modifiable elements

Food Pattern Modeling: 2025 Proposed Questions

- HHS and USDA convened a Food Pattern Modeling Interest Group to evaluate:
  - Highest priority food pattern modeling activities for the 2025 process
  - Opportunities for improving food pattern modeling methods
- An overarching food pattern modeling question was posted for public comment from April 15 - May 16, 2022

> 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:
>
> - Findings from systematic reviews, data analysis, and/or food pattern modeling analyses
> - Population norms (e.g., starchy vegetables are often consumed interchangeably with grains), preferences (e.g., emphasis on one staple grain versus another), or needs (e.g., lactose intolerance) of the diverse individuals and cultural foodways within the U.S. population?
>
> Changes to Dietary Patterns may include increases or decreases in amounts of food groups/subgroups and/or recategorization of food groups/subgroups, as well as subsequent changes to calories available for other uses, including for added sugars.

Food Pattern Modeling: 2025 Question Development

- To operationalize the overarching question and goals, the Food Pattern Modeling Interest Group developed a detailed list of potential food pattern modeling analyses for the Committee refine and prioritize.
- The Interest Group considered:
  - Input from the Interagency Committee on Human Nutrition Research
  - Nutrition and Health Disparities Implementation Working Group | DPCPSI (nih.gov)
  - Food pattern modeling analyses conducted by previous Committees
  - Recommendations from the 2020 Committee
  - Input from federal and state partners
  - Public comments

Food Pattern Modeling: 2025 Proposed Analyses Topics

- Contribution of less nutrient dense foods to item clusters, representative foods, and therefore nutrient profiles for each food group and subgroup used in FPM
- Implications on nutrient adequacy if food group and subgroup quantities are modified
- Implications of allocating remaining calories for other uses to less nutrient-dense food and beverages sources of added sugars, saturated fat, or alcohol
- Evaluation of simulated diets that align with proposed dietary patterns

Food Pattern Modeling: 2025 Question Criteria

- **Relevance:** Question is within the scope of the *Dietary Guidelines* and its focus on food-based recommendations and 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:** There is a high probability that the question will provide the scientific foundation for guidance that would inform federal food and nutrition policies and programs.
- **Avoiding Duplication:** The question is not currently addressed through existing evidence-based federal guidance (other than the *Dietary Guidelines*).

Overarching Goals for the Committee's Work

- Enhance methodology to better reflect intake variability and the range of possible healthful diets based on our diverse populations.
- In addition to meeting nutrient needs, consider population norms and preferences, as well as the dietary needs of diverse individuals and cultural foodways within the U.S. population.
- Provide input on how the words used to name and describe elements of the USDA Dietary Patterns may be updated for future testing to ensure accuracy, clarity, and inclusivity.

Food Pattern Modeling: A Collaborative Process

Committee
(facilitated and documented by FPM analysts)

FPM Staff
(with input from the Committee)

Committee
(facilitated and documented by FPM analysts)

Public comments received and considered throughout

Food Pattern Modeling: Protocol Development

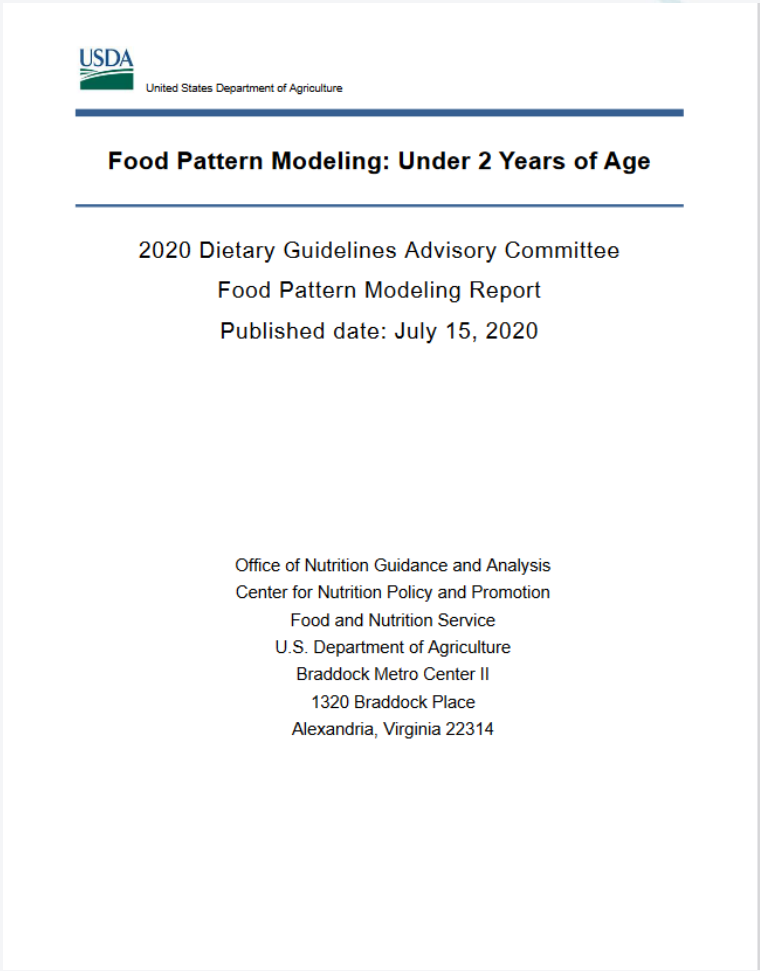
- A protocol is a **prespecified** plan for how USDA's FPM methodology will be used to conduct an analysis.
  - analytic framework - describes the overall scope of the question
  - analytic plan - details the data and methods for food pattern modeling analyses

- The Committee develops the food pattern modeling protocols using a process that is facilitated and documented by FPM analysts, considering input from Federal and public stakeholders.

- Protocols are posted online and discussed at public meetings to provide transparency, guard against selective reporting, and facilitate public comment.

Food Pattern Modeling: Analysis and Results

- USDA FPM analysts conduct the analysis with input from the Committee
- Full reports of the analysis describe the methods and summarize results (e.g. data tables and figures)



USDA
United States Department of Agriculture

Food Pattern Modeling: Under 2 Years of Age

2020 Dietary Guidelines Advisory Committee
Food Pattern Modeling Report
Published date: July 15, 2020

Office of Nutrition Guidance and Analysis
Center for Nutrition Policy and Promotion
Food and Nutrition Service
U.S. Department of Agriculture
Braddock Metro Center II
1320 Braddock Place
Alexandria, Virginia 22314

Food Pattern Modeling: Synthesizing Evidence

- The committee reviews the results of all analyses to:
  - Synthesizes the evidence
  - Develop a conclusion statement
  - Recommend future directions

Commitment to Continuous Quality Advancement

- Convening of the USDA and HHS' Food Pattern Modeling Interest Group
  - With a subgroup of FPM analysts in the FPM Methods Team
- Consultation Federal partners
  - The Interagency Committee on Human Nutrition Research
  - Nutrition and Health Disparities Implementation Working Group | DPCPSI (nih.gov)
- Updates to existing food group and subgroup nutrient profiles to reflect WWEIA, NHANES 2017-2018 reported dietary intakes and corresponding food composition data
- Extensive review of the existing item cluster and representative food assignments
- Development of item clusters specific to baby foods
- Renewed focus on how USDA's food pattern modeling accounts for variation in dietary intake
  - Healthy Dietary Patterns and Variability: An Evidence Scan of Methods.
  - Proposed analyses to account for variability of intake

Commitment to Transparency

- Aspects of USDA's Food Pattern Modeling and the Committee's work will be accessible on dietaryguidelines.gov

- Forthcoming Documentation
  - FPM Continuous Quality Advancement
  - USDA's FPM Methodology
  - Protocols
  - Draft Conclusions
  - FPM technical reports

Food Pattern Modeling Interest Group

- TusaRebecca Pannucci, PhD, MPH, RDN* *Branch Chief , Nutrition and Economic Analysis*
- Meghan Adler, MS, RDN*
- Kara Beckman, PhD
- Carolyn Chung, PhD
- Janet de Jesus, MS, RDN
- Stephenie Fu
- Hazel Hiza, PhD, RDN*
- Kevin Kuczynski, MS, RDN*
- Emily Madan, PhD*
- Verena McClain, PhD, MSc*
- Julia Quam, MSPH, RDN
- Kripa Raghavan, DrPh, MPH, MSc
- Joseph Rorabaugh-Irwin MS, RDN
- Kelley Scanlon, PhD, RDN*
- Colleen Sideck, MPH, RDN*
- Eve Stoody, PhD

**Denotes staff who are part of the FPM methods team and will conduct analysis*

Questions?

Meeting Break

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Data Analysis

Dana DeSilva, PhD, RD

Office of Disease Prevention and Health Promotion

Office of the Assistant Secretary for Health

U.S. Department of Health and Human Services

February 9, 2023

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Overview

- Data Analysis
- Federal Data Sources
- Healthy Eating Index
- Special Considerations due to COVID-19
- Data Analysis Process

Data Analysis

A collection of analyses that uses national data sets to describe the current health and dietary intakes of Americans. These data help make the *Dietary Guidelines* practical, relevant, and achievable.

Federal Data Sources

- National Health and Nutrition Examination Survey (NHANES)
- NHANES, What We Eat in America (WWEIA)
  - USDA Food and Nutrient Database for Dietary Studies (FNDDS)
  - USDA Food Pattern Equivalents Database (FPED)
  - WWEIA Food Categories
- National Health Interview Survey (NHIS)
- Surveillance, Epidemiology and End Results (SEER)

National Health and Nutrition Examination Survey (NHANES)

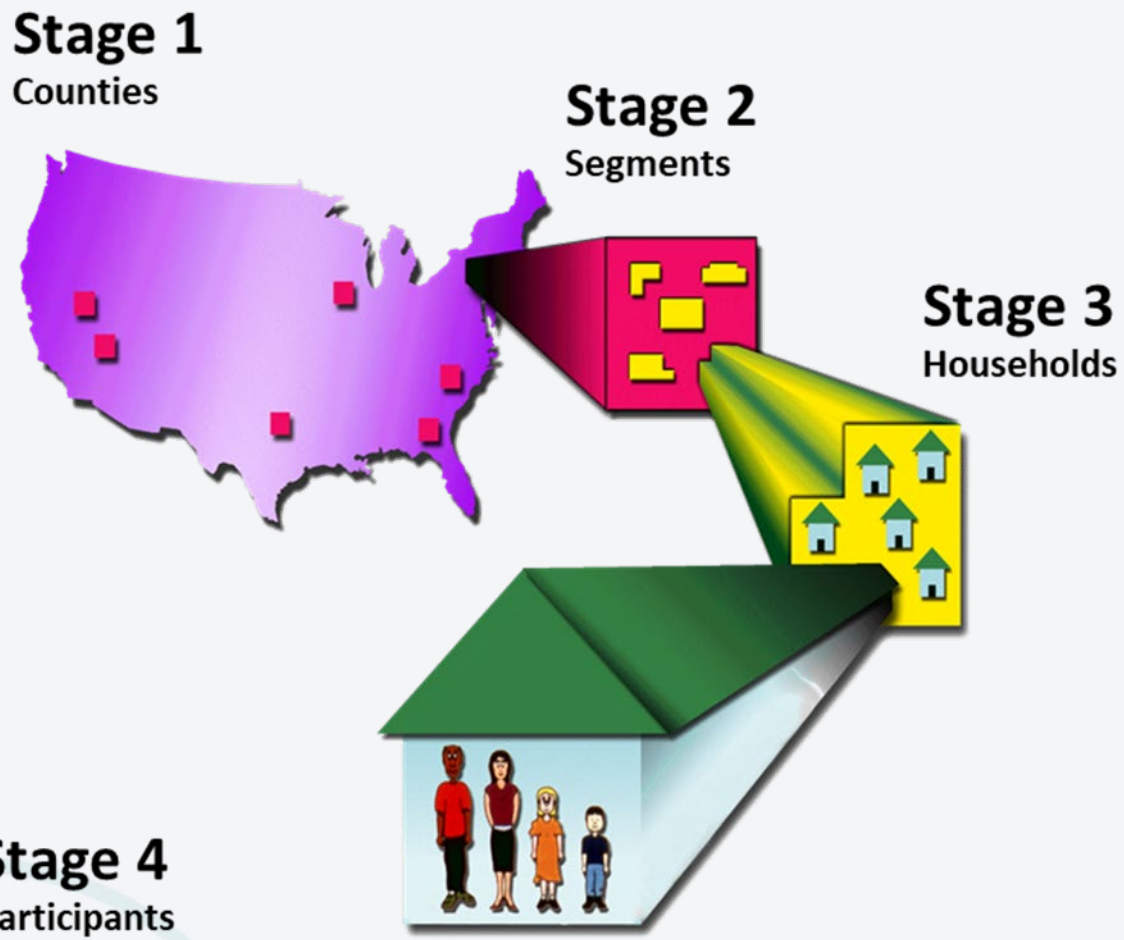
- NHANES is a program of the National Center for Health Statistics (NCHS) within the Centers for Disease Control and Prevention (CDC)
- Designed to assess health and nutrition status of adults and children in the U.S.
- Survey estimates:
  - Prevalence of major diseases
  - Risk factors for diseases
  - Nutrition status and its association with health promotion and disease prevention
  - Dietary intake

History of NHANES

- Program began in the early 1960s as a series of surveys
- Dietary intake data was added in 1970
- In 1999, the survey became a continuous program that collects diet and health data from across the nation on all ages
- Public-use data released in 2-year cycles
  - Exception: 2017 – March 2020

Data Collection
1999 – 2000
2001 – 2002
2003 – 2004
2005 – 2006
2007 – 2008
2009 - 2010
2011 – 2012
2013 – 2014
2015 – 2016
2017 - 2018
2019 – 2020
2021 – 2022

NHANES Sample Design



- Nationally representative of noninstitutionalized civilians
- Complex survey design
- 5,000 individuals in counties across the country examined each year

NHANES Data Collection

In-Home Questionnaire

- Demographics
- Health conditions
- Health insurance and healthcare use
- Prescription and supplement use

Mobile Exam Center (MEC)

- Health exam: e.g., anthropometry, blood pressure, oral health, audiometry
- Lab tests: e.g., nutrition biomarkers, chronic disease markers, infectious diseases, environmental exposures
- 24-hour dietary recall interview

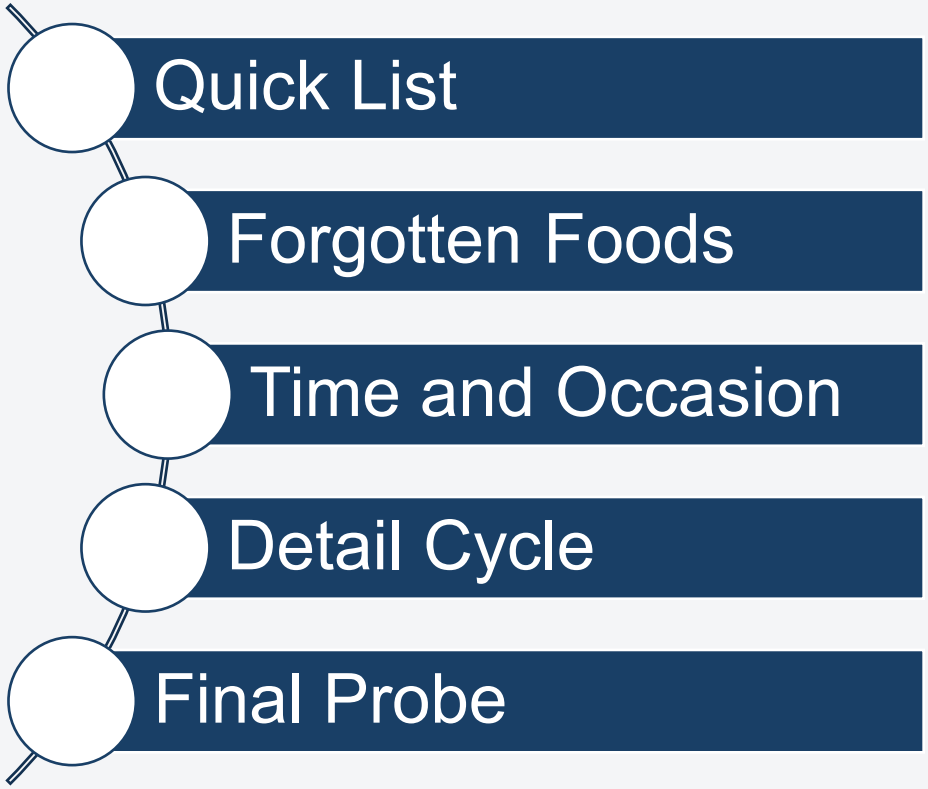
Telephone Follow Up

- 24-hour dietary recall interview

What We Eat In America (WWEIA)

- Dietary component of NHANES
- Day 1 Interview: In-person at MEC
- Day 2 Interview: Telephone

USDA Automated Multiple Pass Method



WWEIA Data Types

Individual Foods	Total Nutrient Intakes
One record for each food or beverage	One record per day for each respondent
Each record contains gram amount consumed, food energy and nutrient intake, whether the food was eaten in combination with other foods, time and eating occasion, source of food, and if eaten at home	Each record contains daily totals of food energy and nutrient intakes, daily intake of water, intake day of week, total number of foods reported, whether intake was usual, more than usual, or less than usual

Supporting Databases for WWEIA

FNDDS
Food and Nutrient Database for Dietary Studies

- Codes for ~7,000 foods and beverages
- Energy and 64 nutrients

FPED
Food Patterns Equivalents Database

- Converts foods and beverages in FNDDS into food group components
- 37 USDA Food Patterns components

WWEIA Food Categories

- Foods and beverages as consumed in the American diet
- ~ 167 unique food categories

Food and Nutrient Database for Dietary Studies (FNDDS)

- Provides nutrient values for foods and beverages reported in WWEIA, NHANES
- Released by USDA's Agricultural Research Service every 2 years in conjunction with WWEIA, NHANES

Quesadilla with chicken (food code 58104740)

- 325 calories
- 14 g protein
- 29 g carbohydrates
- 17 g total fat
- 2 g total dietary fiber
- 645 mg sodium
- 128 mg potassium

Food Patterns Equivalents Database (FPED)

Main Components	FPID/FPED Components
Fruit	1 Total fruit
	2 Citrus, melons, and berries
	3 Other fruits
	4 Fruit juice
Vegetables	5 Total vegetables
	6 Dark green vegetables
	7 Total red and orange vegetables
	8 Tomatoes
	9 Other red and orange vegetables (excludes, tomatoes)
	10 Total starchy vegetables
	11 Potatoes (white potatoes)
	12 Other starchy vegetables (excludes white potatoes)
	13 Other vegetables
	14 Beans and peas computed as vegetables
Grains	15 Total grains
	16 Whole grains
	17 Refined grains
Protein Foods	18 Total protein foods
	19 Total meat, poultry, and seafood
	20 Meat (beef, veal, pork, lamb, game)
	21 Cured meat (frankfurters, sausage, corned beef, cured ham and luncheon meat made from beef, pork, poultry)
	22 Organ meat (from beef, veal, pork, lamb, game, poultry)
	23 Poultry (chicken, turkey, other fowl)
	24 Seafood high in *n*-3 fatty acids
	25 Seafood low in *n*-3 fatty acids
	26 Eggs
	27 Soybean products (excludes calcium fortified soy milk and mature soybeans)
	28 Nuts and seeds
	29 Beans and peas computed as protein foods
Dairy	30 Total dairy (milk, yogurt, cheese, whey)
	31 Milk (includes calcium fortified soy milk)
	32 Yogurt
	33 Cheese
Oils	34 Oils
Solid Fats	35 Solid fats
Added Sugars	36 Added sugars
Alcoholic Drinks	37 Alcoholic drinks

Refined grains + Total grains: 2.43 ounce-eq.

Oils: 3.49 gram-eq.

Cheese + Total dairy: 0.67 cup-eq.

Other vegetables + Total vegetables: 0.01 cup-eq.

Solid fats: 10.5 gram-eq.

Poultry + Total meat, poultry, and seafood + Total protein foods: 0.38 ounce-eq.

Added sugars: 0.2 teaspoon-eq.

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WWEIA Food Categories

- Groups similar foods and beverages together based on their typical use and nutrient content

Food category		Codes [2]	Reports [1] Day 1	Reports [1] Day 2
MIXED DISHES				
Mixed Dishes - Meat, Poultry, Seafood				
3002	*Meat mixed dishes*	301	971	792
3004	*Poultry mixed dishes*	145	724	572
3006	*Seafood mixed dishes*	120	259	173
Mixed Dishes - Bean/Vegetable-based				
3102	*Bean, pea, legume dishes*	24	291	317
3104	*Vegetable dishes*	36	184	123
Mixed Dishes - Grain-based				
3202	*Rice mixed dishes*	136	675	471
3204	*Pasta mixed dishes, excludes macaroni and cheese*	182	1,391	1,224
3206	*Macaroni and cheese*	17	663	585
3208	*Turnovers and other grain-based items*	57	284	191
Mixed Dishes - Asian				
3402	*Fried rice and lo/chow mein*	45	463	304
3404	*Stir-fry and soy-based sauce mixtures*	70	433	251
3406	*Egg rolls, dumplings, sushi*	26	346	178
Mixed Dishes - Mexican				
3502	*Burritos and tacos*	94	1,051	690
3504	*Nachos*	11	194	109
3506	*Other Mexican mixed dishes*	85	591	482

Select Data on Nutrients and Food Group Contributions

42302025: Peanut butter and jelly sandwich, with regular peanut butter, regular jelly, on whole wheat bread (100 g)

FNDDS	359 kcal, 12.5 g protein, 43 g carbohydrate, 17 g fat
FPED	1.2 oz-eq. whole grains, 1.8 oz-eq. nuts & seeds, 11.25 g-eq. oils, 3.35 tsp-eq. added sugars
WWEIA Food Categories	Mixed Dishes → Sandwiches → Peanut butter and jelly sandwiches

National Health Interview Survey (NHIS)

- Nationally representative data collected by CDC's National Center for Health Statistics using computer-assisted personal interviewing
- Major health topics addressed:
  - Physical and mental health status
  - Chronic conditions
  - Health care access and use
  - Health related behaviors, including smoking, alcohol use, and physical activity
  - Measures of functioning and disability
  - Immunizations
- Data collected continuously throughout the year and made available through various outlets:
  - Data Briefs
  - National Health Statistics Reports
  - Quick Stats
  - Publications and articles in scientific journals

Surveillance, Epidemiology, and End Results (SEER)

- Authoritative source for cancer statistics in the U.S. population
- Collects and publishes trends in cancer incidence, deaths, and survival
- Supported by the Surveillance Research Program, Division of Cancer Control and Population Sciences, National Cancer Institute

Healthy Eating Index (HEI)

A measure of diet quality used to assess how well a set of foods and beverages aligns with *Dietary Guidelines.*

Heathy Eating Index (HEI)

HEI-2015[1] Components and Scoring Standards

Component	Maximum points	Standard for maximum score	Standard for minimum score of zero
Adequacy:			
Total Fruits[2]	5	≥0.8 cup equivalent per 1,000 kcal	No Fruit
Whole Fruits[3]	5	≥0.4 cup equivalent per 1,000 kcal	No Whole Fruit
Total Vegetables[4]	5	≥1.1 cup equivalent per 1,000 kcal	No Vegetables
Greens and Beans[4]	5	≥0.2 cup equivalent per 1,000 kcal	No Dark-Green Vegetables or Legumes
Whole Grains	10	≥1.5 ounce equivalent per 1,000 kcal	No Whole Grains
Dairy[5]	10	≥1.3 cup equivalent per 1,000 kcal	No Dairy
Total Protein Foods[4]	5	≥2.5 ounce equivalent per 1,000 kcal	No Protein Foods
Seafood and Plant Proteins[4,6]	5	≥0.8 ounce equivalent per 1,000 kcal	No Seafood or Plant Proteins
Fatty Acids[7]	10	(PUFAs + MUFAs) / SFAs ≥2.5	(PUFAs + MUFAs)/SFAs ≤1.2
Moderation:			
Refined Grains	10	≤1.8 ounce equivalent per 1,000 kcal	≥4.3 ounce equivalent per 1,000 kcal
Sodium	10	≤1.1 grams per 1,000 kcal	≥2.0 grams per 1,000 kcal
Added Sugars	10	≤6.5% of energy	≥26% of energy
Saturated Fats	10	≤8% of energy	≥16% of energy

[1] Intakes between the minimum and maximum standards are scored proportionately.

[2] Includes 100% fruit juice.

[3] Includes all forms except juice.

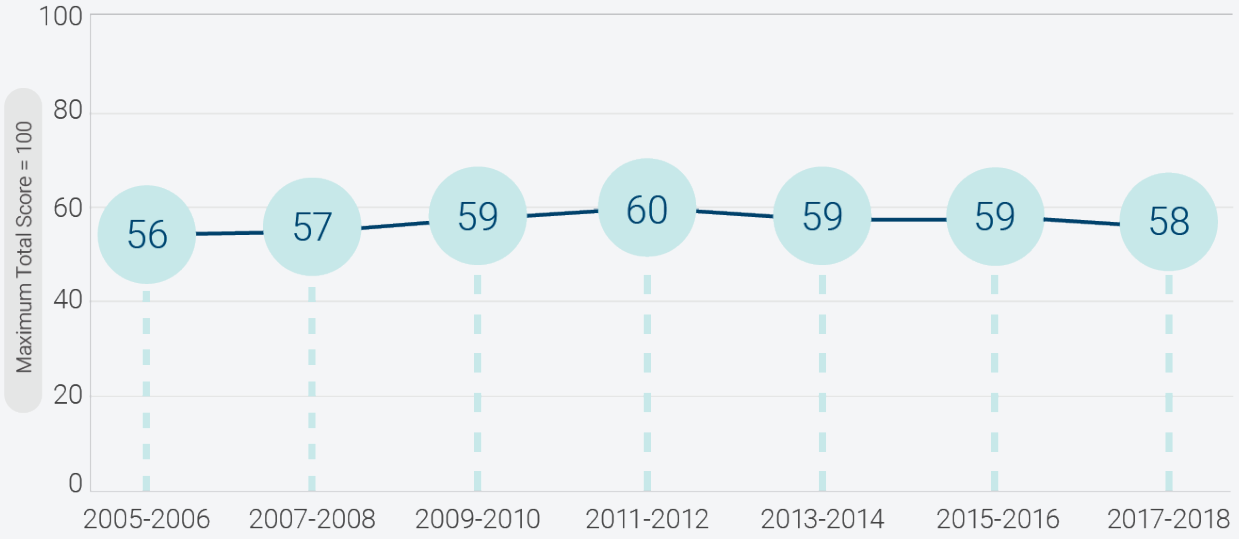
[4] Includes legumes (beans and peas).

[5] Includes all milk products, such as fluid milk, yogurt, and cheese, and fortified soy beverages.

[6] Includes seafood; nuts, seeds, soy products (other than beverages), and legumes (beans and peas).

[7] Ratio of poly- and mono-unsaturated fatty acids (PUFAs and MUFAs) to saturated fatty acids (SFAs).

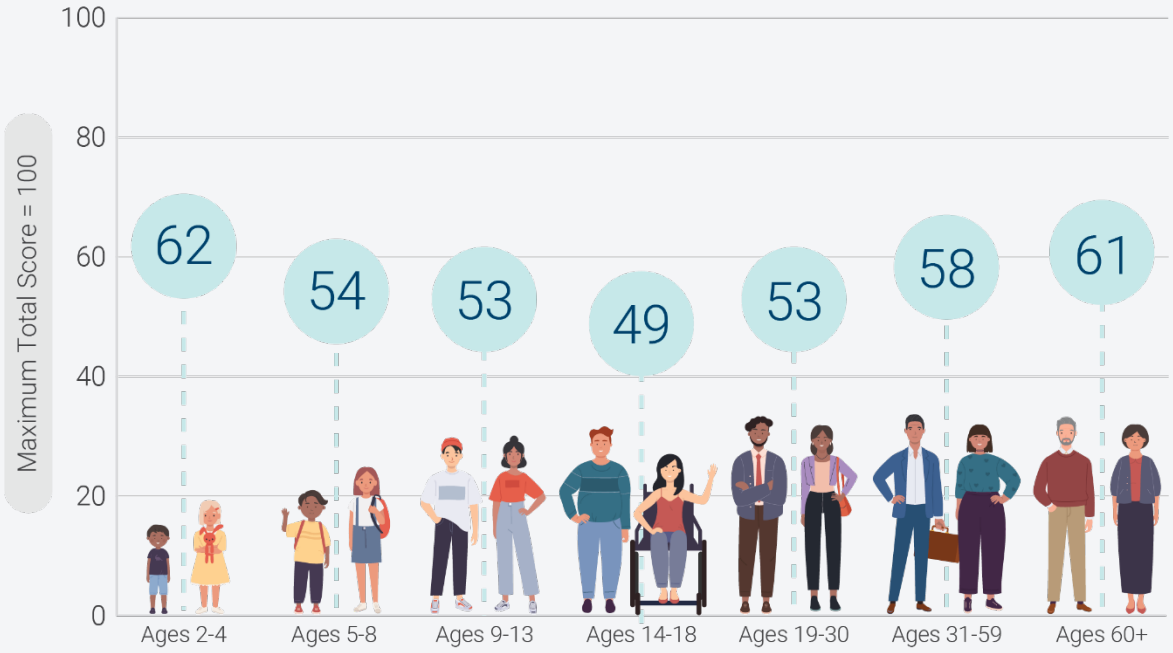
US Eating Patterns Are Below Recommendations



HEI Scores Over Time

The Healthy Eating Index Score

shows that Americans do not align their eating choices with the Dietary Guidelines (on a scale from 0-100)



HEI Scores Across the Lifespan

DGA DietaryGuidelines.gov

USDA

Special Considerations: Impact of COVID-19

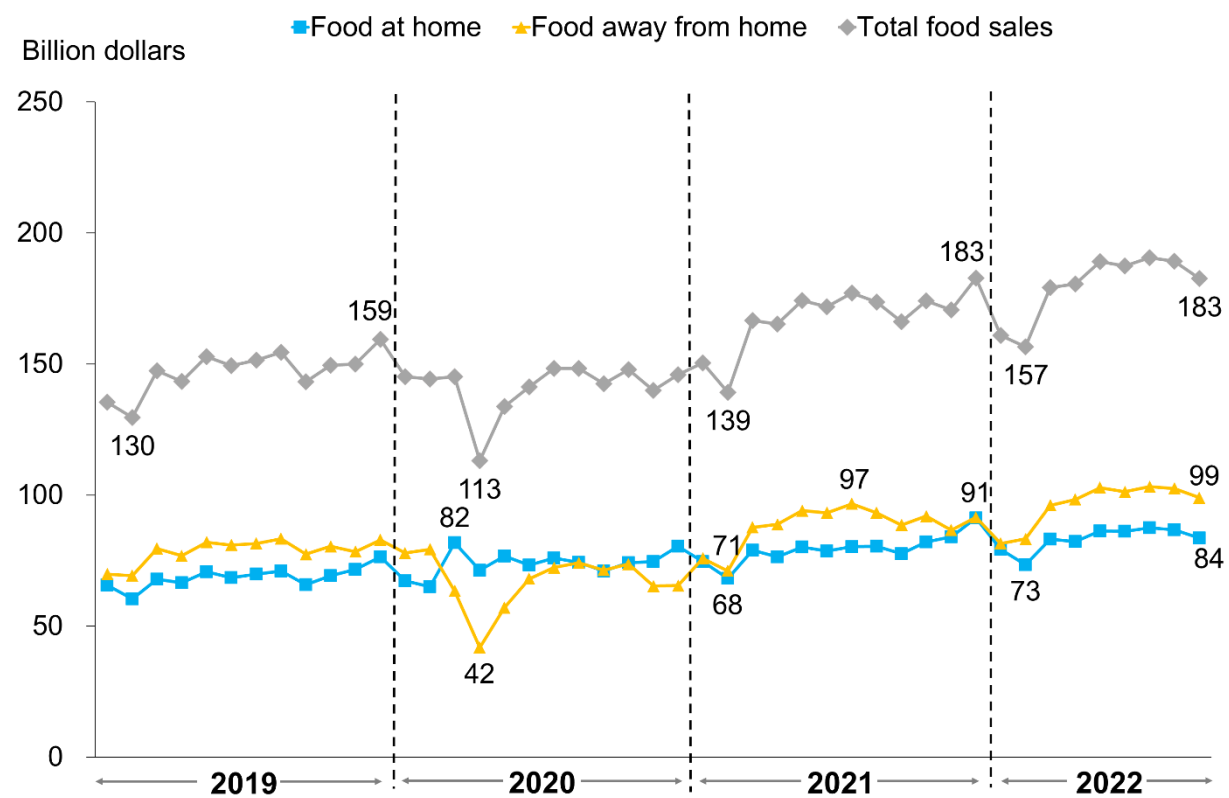
Impact of COVID-19 on Data Collection

- 2019-2020 NHANES data collection suspended in March 2020
- 2019-March 2020 data not nationally representative
  - Combined with 2017-2018 data
- Missing data collection from March 2020-May 2021
- 2021-2022 NHANES data collection in process but most data won't be released in time for analysis

Context on Dietary Intake During the Pandemic

- USDA, Economic Research Service (ERS) data during the pandemic:
  - Food spending
  - Food prices
  - Food sufficiency

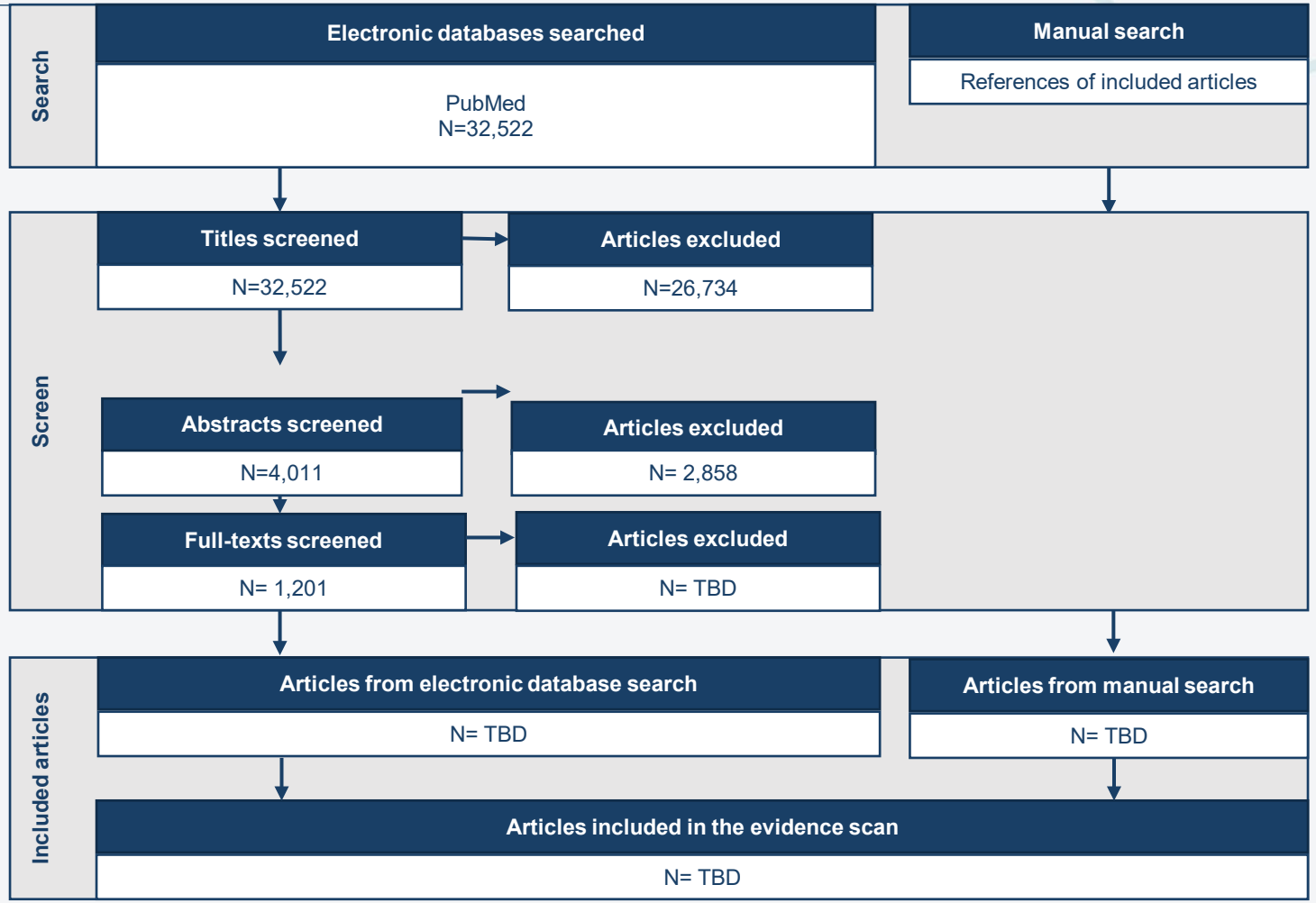
Food spending higher year-over-year for every month in 2022 through September



Source: USDA, Economic Research Service, Food Expenditure Series data, nominal expenditures. Estimates subject to revision based on revisions to the source data. Current estimates include revisions for earlier months.
Last updated: November 18, 2022.

Patterns of Dietary Intake: An Evidence Scan on Datasets

- **Research Question**: What are the patterns of food and beverage intake, from March 2020 – December 2022, including potential changes in dietary intake due to COVID-19 (Coronavirus Disease 2019)?"
- All titles and abstracts screened
- Full text screening in process
- Evidence scan report



Data Analysis Process

Data Analysis Topics

For each stage of life, the following will be described/evaluated:

Current patterns of food and beverage consumption

Current intake of food groups and nutrients

Nutrients of public health concern

Prevalence of nutrition-related chronic health conditions

Data Analysis Protocols Coming Soon

- **Analytic Framework** – describes overall scope of the question and approach used
  - Population (life stage, demographic subgroups)
  - Data Sources (NHANES, WWEIA)
  - Key definitions (ex. - stage of life, beverage pattern)
- **Analytic Plan** – details the data and included analyses
  - Categorized by life stage

Analytic Plan
Lactating Women
Percent of lactating women who consumed beverage types on a given day using WWEIA, NHANES 2017-2018
Children ages 1-18 years
Population average nutrient intakes from food and beverage using WWEIA, NHANES 2017-2018

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Questions?

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Committee Discussion

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2025 Dietary Guidelines
Day 1: Wrap up

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