2020 Dietary Guidelines Advisory Committee: Data Analysis and Food Pattern Modeling

Regan Bailey
Jamy Ard
Teresa Davis
Timothy Naimi
Jamie Stang

Barbara Schneeman

DietaryGuidelines.gov

Status of Questions

- Developing the plan:
  - B-24 protocol elements for:
    - Current intakes of food groups and nutrients
    - Nutrients of public health concern
    - Current dietary patterns and beverages
    - Tracking of dietary intake, particularly dietary patterns, across life stages
  - What is the relationship between frequency of eating and achieving food group and nutrient recommendations?
  - What is the relationship between beverage consumption and achieving food group and nutrient recommendations?
  - What is the relationship between alcohol consumption and achieving food group and nutrient recommendations?
  - What is the relationship between added sugars consumption and achieving food group and nutrient intakes?

All protocols discussed in this presentation are available at DietaryGuidelines.gov

Status of Questions

- Implementing the plan:
  - Current intakes of food groups and nutrients
  - Prevalence of nutrition-related chronic health conditions
  - Nutrients of public health concern
  - Current dietary patterns and beverages
  - Tracking of dietary intake, particularly dietary patterns, across life stages
- Still to come:
  - Are change to the USDA Food Patterns needed based on relationships identified [in systematic reviews]?
  - Can USDA Food Patterns for those under 2 years of age be established based on relationships identified?
  - Food pattern modeling questions related to nutrient adequacy, supplements/fortified foods, and added sugars

All protocols discussed in this presentation are available at DietaryGuidelines.gov

Updates to Protocols Presented in July

General Updates:

- The life stage for infants and toddlers is specified as birth to less than 24 months in the analytic framework.
- Specificity added to age groupings and population subgroups in the analytic plan.
- Added sugars and caffeine are specified as food components rather than nutrients.
- Individual nutrients contributed by beverages will not be specified until nutrients of public health concern have been defined.

Updates to Protocols Presented in July

Protocol-Specific Updates:

- Current Dietary Patterns and Beverage Consumption
  - HEI scores will be compared between 2005-2006 and 2015-2016
- Current Intakes of Food Groups and Nutrients
  - Changes in average nutrient intakes from food and beverages was added to the analytical plan for adults and older adults to be consistent across life stages
- Prevalence of Nutrition-Related Chronic Health Conditions
  - Dentition was added to the analytical framework and the analytical plan

Protocol Discussion

Approach to Answer Question: Data Analysis

Analytic Framework: Population

Nationally representative sample of the U.S. population

Life stages:

- Infants and toddlers (B<24 months)
- Children and adolescents (ages 2-19 years)
- Adults (ages 20-64 years)
- Pregnant Women (20-44 years)
- Lactating Women (20-44 years)
- Older Adults (ages 65 years and older)

Note: *Exceptions to these age groupings will be noted as protocols drafts are presented*

Demographic subgroups:

- Sex
- Race-ethnicity
- Socioeconomic status
- Food security status

Analytic Framework: Dietary Data Sources

What We Eat in America, National Health and Nutrition Examination Survey (WWEIA, NHANES)

- Cross-sectional, nationally representative dietary intake data

USDA Food and Nutrient Database for Dietary Studies

- Nutrient data on foods and beverages

USDA Food Patterns Equivalents Database

- Food group and subgroup data on foods and beverages

WWEIA Food Categories

- Categorization of foods and beverages as-consumed in the population

NHANES Dietary Supplement Database

- Nutrient data on dietary supplements and non-prescription antacids containing calcium and/or magnesium

Key Definitions

Stage of life – The age groups defined by NHANES or the age-sex groups defined for the Dietary Reference Intakes.

Socioeconomic status – Indicators of socioeconomic status may include income in dollars, income as a percent of the poverty ratio, food security, eligibility for federal assistance programs, or level of education.

New Protocols

Relationship to achieving food group and nutrient recommendations

- frequency of eating
- beverage consumption
  - alcohol consumption
- added sugars consumption

Approach to Answer Question: Data Analysis

Question

What is the relationship between frequency of intake and achieving food group and nutrient recommendations?

Approach to Answer Question: Data Analysis

Key Definitions

- **Eating event types -** Self-described by survey participants as:
  - **breakfast** "breakfast", or the Spanish equivalents "desayuno", and "almuerzo"
  - **lunch** "brunch", "lunch", or the Spanish equivalent "comida"
  - **dinner** "dinner", "supper", or the Spanish equivalent "cena"
  - **snack occasions** include all reports of "snack", "drink", or "extended consumption" and Spanish language occasion names: "merienda", "entre comida", "botana", "bocadillo", "tentempie", and "bebida".

Key Definitions

- **Eating events relative to time of day:** definitions still in discussion

Analytic Framework

Frequency of eating, with and without naming conventions:

- Number of eating events in a 24 hour period (midnight to midnight)
- Hourly distribution of eating events in a 24 hour period
- Number of snacks including beverage events
  - With and without water-only events

Percent of Americans engaging in self-described

- meals (e.g. breakfast, lunch, dinner) and
- snacks including beverage events
  - With and without water-only events

Time (hour of the day) in which self-described meals and snacks including beverage events are consumed

Analytic Framework

Proportion of …

- daily food group and subgroup
- dietary components

…intake by eating event type with naming convention.

Question

What is the relationship between beverage intakes and achieving food group and nutrient recommendations?

Approach to Answer Question: Data Analysis

Key Definitions

Beverage pattern – The quantities, proportions, variety or combinations of different beverages in diets.

Discrete beverage groups (1/2) –

- Milk: Plain and flavored milk, other dairy drinks and milk substitutes (Excludes milk or milk substitutes added to alcoholic beverages, coffee, tea, and/or foods such as cereal)
- 100% Juice: 100% fruit and/or vegetable juice
- Coffee/tea: Regular and decaffeinated coffee or tea with additions such as milk, cream and/or sweeteners, and coffee and tea drinks, including ready-to-drink
- Diet beverages: Diet soft drinks, diet sport/energy drinks and other diet drinks that are low- and no-calorie-sweetened, containing 40 kcal or less per reference amount customarily consumed

Key Definitions

Discrete beverage groups continued (2/2)–

- Sweetened beverages: Energy containing soft drinks, fruit drinks, and sports/energy drinks with added sugars that contain more than 40 kcal per reference amount customarily consumed
  - Soft drinks: Energy-containing drinks made with carbonated water
  - Fruit drinks: Energy-containing fruit and/or vegetable drinks that are not 100% juice.
  - Sports/energy drinks: Energy-containing sport/energy drinks, nutritional beverages and protein/nutritional powders consumed with a beverage, smoothies and grain drinks.
- Water: Tap, bottled, flavored, carbonated and enhanced/fortified water containing < 5kcal.
- Alcoholic beverages: Beer, wine, liqueur and cocktails.

Analytic Framework

Food group and dietary components per 8 oz of discrete beverage type

Beverage contribution as a percent of

- total daily energy
- selected nutrients, food components
- food groups
- daily beverage calories by discrete beverage type

Consumption prevalence of

- nutritionally fortified beverages
- cows milk and milk substitute beverages

Question

What is the relationship between alcohol intakes and achieving food group and nutrient recommendations?

Approach to Answer Question: Data Analysis

Key Definitions

Alcoholic-drink Equivalent - One alcoholic drink-equivalent contains 14 grams (0.6 fl oz) of pure alcohol. Reference beverages that are one alcoholic drink-equivalent: 12 fluid ounces of regular beer (5% alcohol), 5 fluid ounces of wine (12% alcohol), or 1.5 fluid ounces of 80 proof distilled spirits (40% alcohol)

Binge drinking – men: drinking five or more drinks on the same occasion; women: drinking four or more drinks on the same occasion

Frequent binge drinking - binge drinking on 5 or more days in the past 30 days based on the thresholds that were described previously for men and women

Analytic Framework

Population:

Dietary Intakes

- Adults ages 20 years and older

Alcohol Use

- Underage alcohol use ages 12-20 years
- Adult alcohol use ages 21 years and older
- Pregnant women ages 18-44 years

Data Sources on Alcohol Use Prevalence:

Behavioral Risk Factor Surveillance System (BRFSS)

- cross-sectional, nationally representative survey on behaviors including alcohol use

National Survey on Drug Use and Health (NSDUH)

- cross-sectional; nationally representative survey on drug use and mental health including alcohol use

Analytic Framework

Prevalence of alcohol use, binge drinking and frequent binge drinking

Average contribution of energy, caffeine, and added sugars per alcoholic drink equivalent of beer, wine, and liquor and cocktails

Alcoholic beverage contribution as a percent of

- Total Energy
- Added sugars, caffeine
- Daily beverage calories

Question

What is the relationship between added sugars intakes and achieving food group and nutrient recommendations?

Approach to Answer Question: Data Analysis

Key Definitions

- **Added sugars -** syrups and other caloric sweeteners. Naturally occurring sugars, such as those in fruit or milk, are not added sugars. Specific examples of added sugars that can be listed as an ingredient include brown sugar, corn sweetener, corn syrup, dextrose, fructose, glucose, high-fructose corn syrup, honey, invert sugar, lactose, malt syrup, maltose, molasses, raw sugar, sucrose, trehalose, and turbinado sugar.

Analytic Framework

Usual intake distribution of added sugars

Percent of population achieving the recommendation

- less than 10% of total energy intake from added sugars

Food category sources of added sugars intakes, and

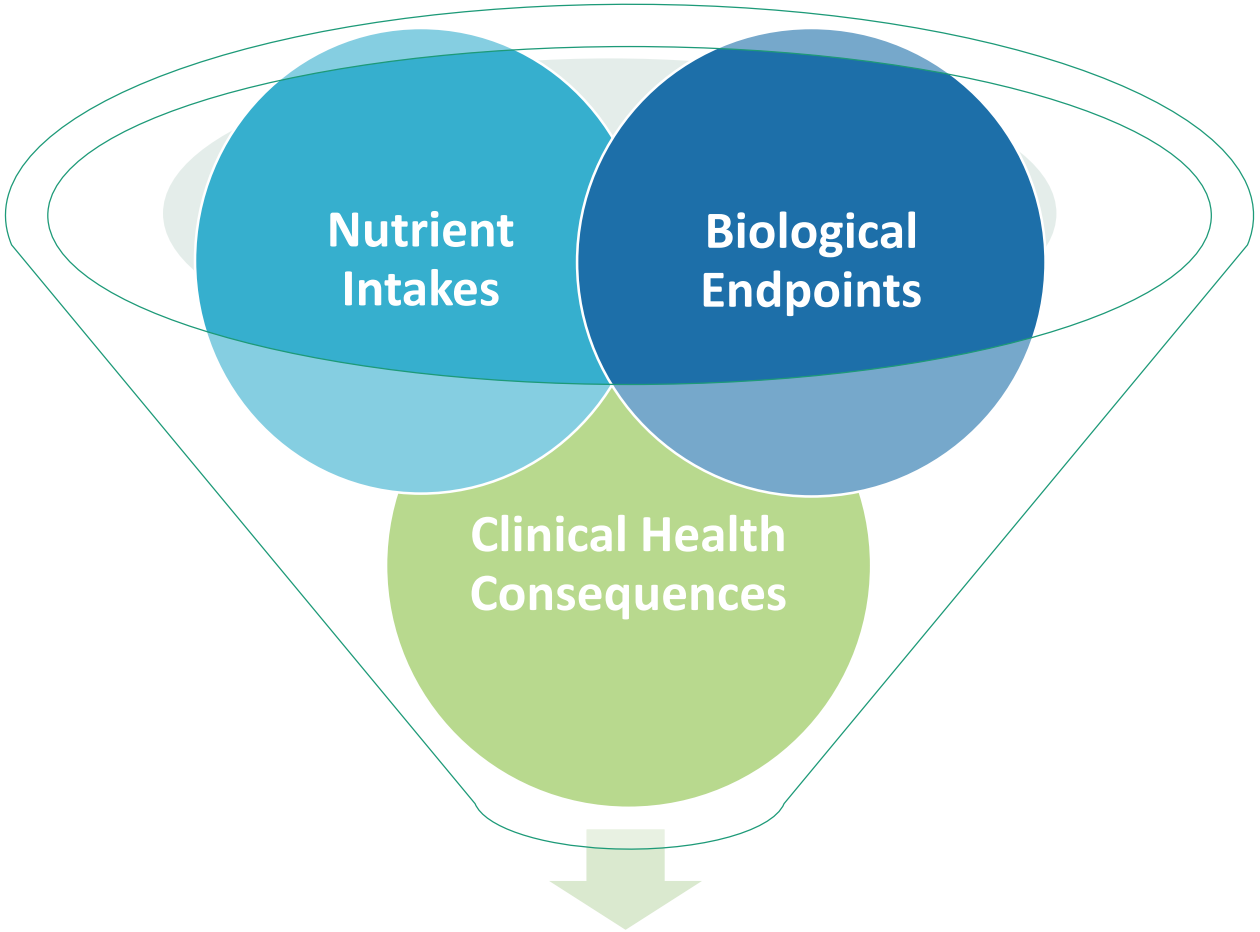
their contributions to nutrient and food group intake

Discussion

Describe/evaluate nutrients of public health concern

Approach to Answer Question: Data Analysis

Analytic Framework: Three Pronged Approach



Nutrients of Public Health Concern

Analytic Framework: Nutrient Intake Adequacy

Nutrient intakes from

- food and beverages alone
- additional contribution from intakes of dietary supplements

Nutrients with an EAR

- EAR cut-point method
- probability approach for iron in menstruating women

Nutrients with an AI

- compare mean intake to AI

Nutrients with a UL or CDRR

- examine percent of population with intakes above UL or CDRR

Nutrients with an AMDR

- examine percent of the population with intakes outside AMDR

Added Sugars and Saturated Fat

- percent energy compared to *2015-2020 Dietary Guidelines for Americans* recommendations of <10% of total energy

Analytic Framework: Nutrient Intake Adequacy

Information for Review

- Previous Dietary Guidelines Advisory Reports
- NASEM report: Redesigning the Process for Establishing the Dietary Guidelines for Americans
- FDA Final Rule for updating the Nutrition Facts Label and Supplement Facts Label
- Sources of significant scientific agreement for special populations

Next Steps

- **Integrate nutrient intakes from dietary supplements**
  - data anticipated for release in fall 2019
- **Review and Summarize data analysis results**
- **Draft conclusion statements**
- **Draft food pattern modeling protocols**

2020 Dietary Guidelines Advisory Committee: Dietary Patterns Subcommittee

Members:

Regan Bailey
Jamy Ard
Teresa Davis
Timothy Naimi
Jamie Stang
Barbara Schneeman

Support Staff:

TusaRebecca Pannucci
Kellie O. Casavale
Emily Callahan
Cheyenne Swanson
Eve Stoody (DFO rep)

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