DESCRIBE/Evaluate Current Dietary Patterns and Beverage Consumption: Data Analysis Protocol

This document describes the protocol for data analysis to address the following question: Describe and evaluate current dietary patterns and beverage consumption. This data analysis protocol is being developed by the 2020 Dietary Guidelines Advisory Committee, Data Analysis and Food Pattern Modeling Cross-Cutting Working Group with support from a federal interagency data analysis team (DAT).

This document describes the protocol, or plan, for how the data analysis is conducted. The protocol provides:

- The analytic framework (p. 2) describes the overall scope of the question and approach used to describe food group and nutrient intakes
- The analytic plan (p. 4) details the data and subsequent included analyses
- The analysis results (p. 8) includes reports that describe the analytic methods and summarize results (e.g. data tables and figures)

This protocol is up-to-date as of: 07/03/2019.
Question: Describe/evaluate current dietary patterns and beverage consumption.

Dietary patterns will be described and evaluated in the following ways:

- The Healthy Eating Index – 2015 (HEI-2015) will be used to assess eating patterns of Americans ages 2+
  - Average HEI-2015 total and components scores
  - Distribution of HEI-2015 scores
- Food Category contributions to total energy intake by age, sex, race and income

Beverage consumption will be described and evaluated in the following ways:

- Types of beverages consumed and their contribution to total beverage consumption.
- Percent of U.S. population consuming types of beverages on a given day
- Volume of beverages consumed on a given day
- Variations in beverage consumption by age-sex groups
- Variations in beverage consumption by race-ethnicity
- Variations in beverage consumption by income
- Percent of energy and nutrients from beverage types
  - Energy
  - Macro/Micro nutrients
  - Added sugars

Population: Nationally representative sample of the U.S. population.

Life stages:

- Infants and toddlers (birth to 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 age groupings will be specified.

Demographic subgroups:

- Sex
- Race-ethnicity
- Socioeconomic status (e.g. income, education)
- Food security status
Data Source:
What We Eat in America, National Health and Nutrition Examination Survey (WWEIA, NHANES); cross-sectional, nationally representative dietary intake data.

Data years:
The most recent cycle of WWEIA, NHANES data collected in 2015-2016 will be the most current data available for consideration by the Committee. For some analyses, multiple cycles of data will be combined to describe “current” intakes (e.g. 2013-2016).
For analyses looking at change in dietary intake over time: the WWEIA 2003-2004 cycle will serve as the years for comparison, with exceptions noted to these data years.

Key definitions:
Stage of life – The age groups defined by the NHANES sampling weights or by the DRI age-sex groups.
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.
Beverage pattern –: the quantities, proportions, variety or combinations of different beverages in diets.
Discrete Beverage Groups –
- 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.
- 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

Reference amount customarily consumed (RACC) – The serving size listed on a Nutrition Facts Label is based on a reference amount of food that is customarily eaten at a single eating occasion as determined by the Food and Drug Administration.
## ANALYTIC PLAN

### Dietary Patterns

To describe and evaluate current dietary patterns in the U.S. population for each life-stage, analysis will quantify intake patterns of food and beverage using WWEIA, NHANES dietary recall data and corresponding nutrient values from the USDA Food and Nutrient Database from Dietary Studies through the following analyses:

#### Birth to 24 months

*The analytic plan for infants and toddlers is still in discussion.*

#### Children (2-19 years)

- Population average HEI-2015 total and component scores among U.S. Children ages 2-19 years using WWEIA, NHANES, 2015-2016
- Food category sources contribution to total energy intake among U.S. children ages 2-19 years, WWEIA, NHANES 2013-2016

#### Adults (20 years and older)

- Population average HEI-2015 total and component scores among U.S. adults ages 20 years and older WWEIA, NHANES, 2015-2016
- Population usual intake distributions of total HEI-2015 scores among U.S adults ages 20 years and older WWEIA, NHANES, 2015-2016
- Food category sources contribution to total energy intake among U.S. adults ages 20 years and older, WWEIA, NHANES 2013-2016

#### Pregnant Women

- Population average HEI-2015 total and component scores among pregnant women in the U.S. using WWEIA, NHANES, 2015-2016
- Food category sources contribution to total energy intake among pregnant women in the U.S. using WWEIA, NHANES 2013-2016

Question: Describe/evaluate current dietary patterns and beverage consumption.
Dietary Patterns (continued)

Lactating Women


Food category sources contribution to total energy intake among lactating women in the U.S. using WWEIA, NHANES 2013-2016

Beverage Consumption

To describe and evaluate current beverage consumption in the U.S. population for each life-stage, analysis will quantify intakes of beverage using WWEIA, NHANES dietary recall data and corresponding nutrient values from the USDA Food and Nutrient Database from Dietary Studies through the following analyses:

Birth to less than 24 months

The analytic plan for infants and toddlers is still in discussion.

Children ages 2-19 years

Percent of children (2-19 years) who consumed beverage types on a given day WWEIA, NHANES 2015-2016

Sweetened beverage consumption by race and age among U.S. children ages 2-19 years, WWEIA, NHANES 2015-2016

Mean daily beverage intake (fluid ounces) by beverage type among U.S. children ages 2-19 years using WWEIA, NHANES 2015-2016

Percent of mean daily energy and selected nutrient intakes contributed by beverages among U.S. children ages 2-19 years using WWEIA, NHANES 2015-2016

Nutrients include: carbohydrates, added sugars, protein, vitamin C, vitamin D, calcium, potassium, magnesium, phosphorus, and caffeine¹

Percent of daily beverage calories by discrete beverage type among the U.S. population of children ages 2-19 years, WWEIA, NHANES 2015-2016

¹Nutrients of public health concern to be included once defined

Question: Describe/evaluate current dietary patterns and beverage consumption.
### Beverage Consumption (continued)

#### Adults ages 20 years and older

- Percent of adults (20 years and older) who consumed beverage types on a given day WWEIA, NHANES 2015-2016
- Sweetened beverage consumption by race and age among U.S. adults ages 20-64 years, WWEIA, NHANES 2015-2016
- Mean daily beverage intake (fluid ounces) by beverage type among U.S. adults ages 20-64 years using WWEIA, NHANES 2015-2016
- Percent of mean daily energy and selected nutrient intakes contributed by beverages among U.S. adults ages 20-64 years using WWEIA, NHANES 2015-2016
  - Nutrients include: carbohydrates, added sugars, protein, vitamin C, vitamin D, calcium, potassium, magnesium, phosphorus, and caffeine
- Percent of daily beverage calories by discrete beverage type among the U.S. population of adults ages 20-64, WWEIA, NHANES 2015-2016

#### Pregnant Women

- Percent of pregnant women who consumed beverage types on a given day WWEIA, NHANES 2013-2016
- Sweetened beverage consumption by race among U.S. pregnant women, WWEIA, NHANES 2013-2016
- Mean daily beverage intake (fluid ounces) by beverage type among U.S. pregnant women using WWEIA, NHANES 2013-2016
- Percent of mean daily energy and selected nutrient intakes contributed by beverages among U.S. pregnant women using WWEIA, NHANES 2013-2016
  - Nutrients include: carbohydrates, added sugars, protein, vitamin C, vitamin D, calcium, potassium, magnesium, phosphorus, and caffeine
- Percent of daily beverage calories by discrete beverage type among the U.S. population of pregnant women, WWEIA, NHANES 2013-2016

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2 Nutrients of public health concern to be included once defined

**Question:** Describe/evaluate current dietary patterns and beverage consumption.
**Beverage Consumption (continued)**

**Lactating Women**

- Percent of lactating women who consumed beverage types on a given day
  WWEIA, NHANES 2013-2016

- Sweetened beverage consumption by race among U.S. lactating women,
  WWEIA, NHANES 2013-2016

- Mean daily beverage intake (fluid ounces) by beverage type among U.S. lactating
  women using WWEIA, NHANES 2013-2016

- Percent of mean daily energy and selected nutrient intakes contributed by
  beverages among U.S. lactating women using WWEIA, NHANES 2013-2016

  Nutrients include: carbohydrates, added sugars, protein, vitamin C, vitamin D,
  calcium, potassium, magnesium, phosphorus, and caffeine

- Percent of daily beverage calories by discrete beverage type among the U.S.
  population of lactating women, WWEIA, NHANES 2013-2016

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3 Nutrients of public health concern to be included once defined

**Question:** Describe/evaluate current dietary patterns and beverage consumption.
ANALYSIS RESULTS

This protocol will be updated with the links to the methods and results for each analysis used to describe and evaluate food group and nutrient intakes after the analytic plan has been finalized and implemented.

Question: Describe/evaluate current dietary patterns and beverage consumption.