WHAT IS THE RELATIONSHIP BETWEEN ALCOHOL CONSUMPTION AND ACHIEVING NUTRIENT AND FOOD GROUP RECOMMENDATIONS?: DATA ANALYSIS PROTOCOL

This document describes the protocol for data analysis to address the following question:

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

This data analysis is being conducted 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 includes details about the methodology, as it will be applied to the data analysis as follows:

- The analytic framework (p. 2) describes the overall scope of the question and approach used to describe the relationship between alcohol consumption and achieving nutrient and food group recommendations.
- The analytic plan (p. 5) details the data and subsequent included analyses
- The analysis results (p. 6) includes reports that describe the analytic methods and summarize results (e.g. data tables and figures)

This protocol is up-to-date as of: 10/22/2019.
ANALYTIC FRAMEWORK

The analytic framework describes the overall scope of the analyses, including the population and type of analyses and data sources identified to answer the question. It also includes the definitions of key terms.

**Question:** What is the relationship between alcohol consumption and achieving nutrient and food group recommendations?

Alcoholic beverage category contributions to food groups and nutrients
- Average contribution of energy, caffeine, and added sugars per alcoholic drink equivalent of beer, wine, and liquor and cocktails.

Prevalence of alcohol use, binge drinking and heavy alcohol use

The following are also a part of the analytic framework for the question: *describe and evaluate current dietary patterns and beverages.*
- Alcoholic beverage contribution as a percent of total daily energy and selected nutrients and food groups
  - Energy (and percent of energy from macronutrients)
  - Macro/Micro nutrients, limited to nutrients of public health concern
  - Other food components: e.g. added sugars, caffeine
- Percent of daily beverage calories by alcoholic beverage type

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

**Life stages:**
- Children and adolescents (ages 2-19 years)
- Adults (ages 20-64 years)
- Pregnant women (ages 20-44 years) self-reported pregnancy status and/or positive urinary pregnancy test.
- Lactating women (ages 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).

**Data Source:**
*Behavioral Risk Factor Surveillance System (BRFSS)*; cross-sectional, nationally representative survey on behaviors including alcohol use.

**Data Years:** 2015-2017

**Data Source:**
*National Survey on Drug Use and Health (NSDUH)*; cross-sectional; nationally representative survey on drug use and mental health including alcohol use prevalence

**Data Years:** 2016
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.

**Alcoholic-drink Equivalent** - One alcoholic drink-equivalent contains 14 grams (0.6 fl oz) of pure alcohol. The following are 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). Drink-equivalents are not intended to serve as a standard drink definition for regulatory purposes.

**Binge drinking** – males: drinking five or more drinks on the same occasion; females has been defined as 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 defined for binge drinking.
ANalytic Plan

To describe the relationship between alcohol consumption and achieving nutrient and food group recommendations in the U.S. population for each life-stage, analysis will quantify intake patterns using WWEIA, NHANES dietary recall data and corresponding nutrient values from the USDA Food and Nutrient Database for Dietary Studies through the following analyses:

Contextual Analysis not specific to life stage
Average contribution of energy, caffeine, and added sugars per alcoholic drink equivalent of beer, wine, and liquor and cocktails.

Children and Young Adults (12-20 years)
Prevalence of under-age alcohol use, binge drinking and heavy drinking among youth ages 12-20, 2016 National Survey on Substance Use and Health

Adults (20 years and older)
Prevalence of alcohol use, binge drinking and heavy drinking among adults ages 18-26 years and older, 2016 National Survey on Substance Use and Health
Percent of mean daily energy and selected nutrient and food component intakes contributed by alcoholic beverages among U.S. adults ages 20 years and older using WWEIA, NHANES 2015-2016
Nutrients and food components include: macronutrients, added sugars, nutrients identified to be of public health concern once defined, and caffeine
Percent of daily beverage calories by alcoholic beverage type among the U.S. population of adults ages 20 years and older, WWEIA, NHANES 2015-2016

Pregnant Women
Consumption of Alcohol Beverages and Binge Drinking Among Pregnant Women Aged 18–44 Years in the U.S. BRFSS, 2015–2017
ANALYSIS RESULTS

This protocol will be updated with the links to the methods and results for each analysis used to describe the relationship between alcohol intake and achieving food group and nutrient recommendations after the analytic plan has been finalized and implemented.