

SNAP-Ed Toolkit

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R2: Fruits & Vegetables*

Framework Component

Population Results – Trends and Reductions in Disparities

Indicator Description

This indicator represents changes in fruit and vegetable consumption, including subgroups of under-consumed vegetables, over time, from year to year, among the low-income population of the state. Unlike MT1 and LT1 (Healthy Eating Behaviors), which measure increases in fruit and vegetable intake attributed to SNAP-Ed series-based programs, R2 is intended to measure the proportion of the SNAP-Ed eligible population that is achieving the *Dietary Guidelines for Americans, 2015* recommendations. Thus, R2 measures fruit and vegetable consumption status for low-income households surveyed within the state or area of focus. R2 is a population-level surveillance measure. *SNAP-Ed Priority Outcome Indicator

Background and Context

The current *Dietary Guidelines for Americans* recommends intake of 1 to 2½ cups of fruit per day and 1 to 4 cups per day of vegetables based on daily calories consumed. Most Americans are not eating enough fruits and vegetables. According to CDC's *Fruit and Vegetable Indicator Report, 2013*, adults eat fruit 1.1 times per day, and vegetables approximately 1.6 times per day. Three vegetable subgroups—legumes, dark green vegetables, and orange-colored vegetables—are particularly nutrient dense and significantly under-consumed by Americans across most age and gender groups. “Making half your plate fruits and vegetables” is an important aspect of the *Dietary Guidelines for Americans*, and fruit and vegetable consumption is often used as a marker of a general healthy diet.

Outcome Measures

Number or percentage of SNAP-Ed eligible persons who ate: R2a. Fruits one or more times per day (or, median number of times or cups consumed daily)

1. 100 percent PURE fruit juices
2. Fruit, including fresh, frozen, or canned fruit (not counting juice)

R2b. Vegetables one or more times per day (or, median number of times or cups consumed daily)

1. Cooked or canned beans (not including long green beans)
2. Dark green vegetables
3. Orange-colored vegetables
4. Other vegetables

What to Measure

Adults

- a. Number or percentage of adults who ate fruit or drank 100 percent fruit juice • Number or percentage of adults who drank 100 percent fruit juice • Number or percentage of adults who ate whole fruit (not juice)
- b. Number or percentage of adults who ate vegetables • Number or percentage of adults who ate cooked or canned beans (legumes) • Number or percentage of adults who ate dark green vegetables • Number or percentage of adults who ate orange-colored vegetables • Number or percentage of adults who ate other vegetables

Children/Adolescents

- a. Number or percentage of children/adolescents who ate fruit or drank 100 percent fruit juice • Number or percentage of children/adolescents who drank 100 percent fruit juice • Number or percentage of children/adolescents who ate whole fruit (not juice)
- b. Number or percentage of children/adolescents who ate vegetables • Number or percentage of children/adolescents who ate cooked or canned beans (legumes) • Number or percentage of children/adolescents who ate dark green vegetables • Number or percentage of children/adolescents who ate orange-colored vegetables • Number or percentage of children/adolescents who ate other vegetables

Population

Youth (pre-school and above) or Adults

Surveys and Data Collection Tools

The Behavioral Risk Factor Surveillance System (BRFSS) is one national surveillance survey that can potentially collect fruit and vegetable consumption data from adults; however, the fruit and vegetable module is optional, so it is not asked annually. The Youth Risk Behavior Surveillance System collects fruit and vegetable consumption data from high school–age youth, but it is administered every 2 years and at least one state does not participate. As an alternative, evaluation data can be collected by 1) adding a module of questions like those

listed below to a statewide survey collecting population data that can identify the low-income segment of its sample, such as your state’s BRFSS; 2) conducting a population-level 24-hour recall with your state SNAP-Ed population or another representative low-income population sample; or 3) conducting another type of annual data collection that includes these questions from either your total SNAP-Ed population or a representative random sample of it. The same question module should be used year-to-year for consistency. **ADULTS** [collapse title="National Surveillance Surveys¹"] **Behavioral Risk Factor Surveillance System; Fruit and Vegetable Section 1** (6 items) <http://www.cdc.gov/brfss/questionnaires/index.htm>

- “These next questions are about the fruits and vegetables you ate or drank during the last 30 days. Please think about all forms of fruits and vegetables including cooked or raw, fresh, frozen, or canned. Please think about all meals, snacks, and food consumed at home and away from home.” [R2a, R2a1 R2a2, R2b, R2b1–R2b4] Respondents are asked to report consumption as times per day, week, or month:
 - 100 percent PURE fruit juices
 - Fruit, including fresh, frozen, or canned fruit (not counting juice)
 - Cooked or canned beans (not including long green beans)
 - Dark green vegetables
 - Orange-colored vegetables
 - Other vegetables

Calculate total daily fruit consumption based on responses to questions 1 and 2, and total daily vegetable consumption based on questions 3–6.

[/collapse] [collapse title="Other Instruments"] **Fruit and Vegetable Checklist** (6 items)

<http://www.cdph.ca.gov/programs/cpns/Pages/Chapter1RequiredSurveysforImpactOutcomeEvaluation.aspx>

- Fruit: How much do you eat each day? [R2a]
 - Responses: None; ½ cup; 1 cup; 1½ cups; 2 cups; 2½ cups; 3 cups or more
- Vegetables: How much do you eat each day? [R2b]
 - Responses: None; ½ cup; 1 cup; 1½ cups; 2 cups; 2½ cups; 3 cups or more

National Cancer Institute (NCI) Fruit & Vegetable Intake Screeners from the Eating at America's Table Study All Day Screener (19 items) [R2a, R2a1, R2a2, R2b, R2b1]

https://epi.grants.cancer.gov/diet/shortreg/instruments/eats_all-day.pdf 10 foods, 2 questions for each except “mixtures that included vegetables” does not ask for amount; 100 percent juice, fruit, lettuce salad, French fries, other white potatoes, cooked dried beans, other vegetables, tomato sauce, vegetable soups)

- Over the last month, how many times per month, week, or day did you drink/eat [food]?
 - Responses: Never, 1-3 times last month, 1-2 times per week, 3-4 times per week, 5-6 times, per week, 1 time per day, 2 times per day, 3 times per day, 4 times per day, 5 or more times per day
- Each time you ate/drank [food], how much did you usually eat/drink?
 - Responses: Varies depending on the item

By Meal Screener (27 questions) [R2a, R2a1, R2a2, R2b, R2b1]

https://epi.grants.cancer.gov/diet/shortreg/instruments/eats_by-meal.pdf More detailed and somewhat more accurate than the All Day Screener as evaluated by 24-hour recall. Same question format as above for juice, salad, French fries, white potatoes, and beans. Then, for each meal, the respondent is asked to “divide your waking hours into three time periods: MORNING, LUNCHTIME AND AFTERNOON, and SUPPERTIME AND EVENING” and “Please think about the foods you ate during each of those time periods over the last month.” For each time period, four questions are asked. Responses are the same for vegetables and fruit:

- Think about all the foods you ate at your [TIME OF DAY] meal and snacks over the last month. On how

- many days did you eat fruit for your [TIME OF DAY] meal or [TIME OF DAY] snacks? Count any kind of fruit—fresh, canned, and frozen. Do not count juices
- Responses: Never, 1-3 days last month, 1-2 days per week, 3-4 days per week, 5-6 days per week, every day
 - When you ate fruit in the [TIME OF DAY], what is the total amount of fruit that you usually ate in a [TIME OF DAY]?
 - Responses: Less than ½ cup, ½ to 1 cup, 1 to 2 cups, more than 2 cups
 - Think about all the foods you ate at your [TIME OF DAY] meal and snacks over the last month. On how many days did you eat vegetables for your [TIME OF DAY] meal or [TIME OF DAY] snacks? Do not count lettuce salads, white potatoes, cooked dried beans, vegetables in mixtures, such as in sandwiches, omelets, casseroles, and rice. Count all other vegetable
 - When you ate vegetables in the [TIME OF DAY], what is the total amount of vegetables that you usually ate in a [TIME OF DAY]?

[/collapse] **CHILDREN & YOUTH** [collapse title="National Surveillance Surveys¹"] **Youth Risk Behavior Survey** <http://www.cdc.gov/healthyyouth/data/yrbs/index.htm>

- During the past 7 days, how many times did you eat potatoes? (Do not count French fries, fried potatoes, or potato chips.) [LT2b]
 - Responses: A. I did not eat potatoes during the past 7 days; B. 1 to 3 times during the past 7 days; C. 4 to 6 times during the past 7 days; D. 1 time per day; E. 2 times per day; F. 3 times per day; G. 4 or more times per day
- During the past 7 days, how many times did you eat carrots? [LT2b, LT2b3]
 - Responses: I did not eat carrots during the past 7 days; B. 1 to 3 times during the past 7 days; C. 4 to 6 times during the past 7 days; D. 1 time per day; E. 2 times per day; F. 3 times per day; G. 4 or more times per day
- During the past 7 days, how many times did you eat green salad? [LT2b]
 - Responses: I did not eat green salad during the past 7 days; B. 1 to 3 times during the past 7 days; C. 4 to 6 times during the past 7 days; D. 1 time per day; E. 2 times per day; F. 3 times per day; G. 4 or more times per day
- During the past 7 days, how many times did you eat other vegetables? (Do not count green salad, potatoes, or carrots) [LT2b]
 - Responses: I did not eat other vegetables during the past 7 days; B. 1 to 3 times during the past 7 days; C. 4 to 6 times during the past 7 days; D. 1 time per day; E. 2 times per day; F. 3 times per day; G. 4 or more times per day

[/collapse] [collapse title="Other Instruments"] **California Youth Nutrition and Physical Activity Survey** (condensed version of the School and Physical Activity Nutrition project [SPAN] survey) 4th–8th Grades <http://www.cdph.ca.gov/programs/cpns/Pages/Chapter1RequiredSurveysforImpactOutcomeEvaluation.aspx>

- Yesterday, did you eat fruit? Include fresh, frozen, or canned. *Do not count* fruit juice. [R2a]
 - Responses: No, I didn't eat any fruit yesterday; Yes, I ate fruit 1 time yesterday; Yes, I ate fruit 2 times yesterday; Yes, I ate fruit 3 times yesterday; Yes, I ate fruit 4 times yesterday; Yes, I ate fruit 5 or more times yesterday
- Yesterday, did you eat any vegetables? Vegetables are all cooked and uncooked vegetables; salads; and boiled, baked, and mashed potatoes. *Do not count* French fries or chips. [R2b]
 - Responses; No, I didn't eat any vegetables yesterday; Yes, I ate vegetables 1 time yesterday; Yes, I ate vegetables 2 times yesterday; Yes, I ate vegetables 3 times yesterday; Yes, I ate vegetables 4 times yesterday; Yes, I ate vegetables 5 or more times yesterday.

6th to 8th Grade EFNEP Nutrition Education Survey

<https://www2.ag.purdue.edu/programs/hhs/efnep/Pages/Resource-Evaluation.aspx>

- Yesterday, how many times did you eat fruit, not counting juice? Include fresh, frozen, canned, and dried fruits. If you ate 2 different fruits in a meal or a snack, count them as 2 times. [R2a]
 - *Responses:* None; 1 time; 2 times; 3 times; 4 or more times
- Yesterday, how many times did you eat vegetables, not counting French fries? Include cooked vegetables, canned vegetables, and salads. If you ate 2 different vegetables in a meal or a snack, count them as 2 times. [R2b]
 - *Responses:* None; 1 time; 2 times; 3 times; 4 or more times

[/collapse] Additional evaluation tools to measure R2 can be found in the [SNAP-Ed Library](#).

Key Glossary Terms

[glossary]Population-based data collection[/glossary] [glossary]SNAP-Ed eligible persons[/glossary]
 [glossary]Surveillance[/glossary]

Additional Resources or Supporting Citations

¹ Indicator R2 measures fruit and vegetable consumption among low-income children and adults using public health surveillance tools, such as the Behavioral Risk Factor Surveillance System (BRFSS) and the Youth Risk Behavior Surveillance System (YRBSS). CDC maintains a Nutrition, Physical Activity, and Obesity Data, Trends and Maps website, available at <http://www.cdc.gov/nccdphp/DNPAO/index.html>. The CDC data include cross-tabulations by race/ethnicity, income, and gender, which are useful for tracking disparities. While not every state, territory, or tribe administers these surveys, they represent the most definitive sources on health risk behaviors at the state level. Other states could incorporate the aforementioned survey questions in their own locally administered health surveys. Previously, the BRFSS used five times per day combined fruit and vegetable consumption as a target; however, in the July 2015 Morbidity and Mortality Weekly Report (http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6426a1.htm?s_cid=mm6426a1_e), experts from CDC and the National Cancer Institute describe a new methodology that aligns participant responses in the BRFSS survey with recommendations that are age- and sex-specific and are appropriate for adults who engage in One area of potential confusion in R2 is the referent time period. The BRFSS asks participants to identify the number of times in the past day, week, and month when they consumed fruit and vegetables; the YRBSS uses the past seven days; and EFNEP Youth Surveys use yesterday. Evaluators should denote their time period when reporting results and use the same time periods for long-term trend analysis. **Additional Source** CDC State Indicator Report on Fruits and Vegetables, 2013 <https://www.naccho.org/uploads/downloadable-resources/national-action-guide2013.pdf>