FY 2024
SNAP-Ed Behavior Outcome Measurement Toolkit
Nutrition Education and Obesity Prevention Grant Program
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Introduction

The Supplemental Nutrition Assistance Program Nutrition Education (SNAP-Ed) includes three types of interventions that seek to support individuals in making the healthy choice the easy (and preferred) choice (figure 1). Direct education and social marketing increase people’s knowledge and awareness of healthy lifestyle options, while policy, systems, and environmental (PSE) changes improve access, affordability, and appeal of those healthy lifestyle options.

This SNAP-Ed Behavior Outcome Measurement Toolkit (toolkit) aims to help SNAP-Ed agencies collect data on individual-level behavior outcomes from their direct education interventions. These outcomes are identified in the SNAP-Ed Evaluation Framework (U.S. Department of Agriculture, Food and Nutrition Service [USDA FNS], 2016). Behavior outcomes are the changes in behavior that an agency would expect intervention participants to adopt. In some cases, those changes may be broad dietary improvements, but interventions often prioritize more specific behaviors, such as reducing intake of sugary drinks.

Figure 1. SNAP-Ed Intervention Types

Indicators and behavior outcome measures enable agencies to track progress toward State goals and objectives. The SNAP-Ed Evaluation Framework consists of short-term (ST), medium-term (MT), and long-term (LT) indicators at the individual, environmental, and sectors-of-influence levels; it also contains population indicators. The levels in the SNAP-Ed Evaluation Framework align with the Social-Ecological Model (SEM) to illustrate how all sectors of society—including individuals and families, communities, organizations, businesses, and policymakers—interact to shape an individual’s food and physical activity choices. SNAP-Ed interventions reach people at multiple levels of the SEM (figure 2).
This toolkit describes the steps that agencies can follow after the completion of a needs assessment and before the implementation of individual-level interventions. The final step of a needs assessment is for State and implementing agencies to collaboratively draft priority State goals. While all SNAP-Ed projects and interventions share the same overarching program goal, States use the needs assessment findings to identify State-level goals, objectives, and indicators. FNS encourages States to develop five to seven goals, each of which must have at least one measurable, achievable, relevant, and time-bound (SMART) objective (Centers for Disease Control and Prevention, 2018). For example, a State could set a goal related to improving diets with objectives tied to age groups (e.g., youth), food categories (e.g., increasing fruit and vegetable variety), or both.

Objectives link to one or more indicators (e.g., changes in individual and family healthy eating behaviors), which consist of outcome measures (e.g., cups of fruit consumed per day). Figure 3 shows how the State goals, objectives, and indicators relate to one another. Agencies use the objectives, indicators, and outcome measures to track progress toward the State goals.

Figure 3. Hierarchy of State Goals, Objectives, and Indicators

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This toolkit provides information for the varied groups involved in the planning, administration, and monitoring of direct nutrition education, such as SNAP State agencies, implementing agencies, subcontractors receiving SNAP-Ed funding, and organizations partnering with SNAP-Ed–funded agencies. The toolkit uses the term “agency” to refer broadly to these groups that plan, carry out, monitor, and evaluate SNAP-Ed programming. The toolkit is also a resource for State and implementing agencies when reporting on their SNAP-Ed direct education interventions through the web-based SNAP-Ed National Program Evaluation and Reporting System. The toolkit defines key terms in callout boxes throughout the chapters and in appendix A. The “In Practice” sections provide examples of how the toolkit concepts apply to various direct education interventions.

The toolkit integrates suggestions on how to apply an equity approach to behavior outcome measurements. In 2022, USDA established an Equity Commission to provide recommendations to increase equity within USDA and its programs. The Equity Commission will help USDA implement the 2021 Executive Order on Advancing Racial Equity and Support for Underserved Communities Through the Federal Government (White House, 2021). Equitable access to programs for all eligible Americans is a focal point of this directive for all USDA programs.

In addition to prioritizing equitable access to programming, agencies should incorporate an equity approach to programming, including the evaluation of the program’s behavior outcomes. Equity should be foundational in all SNAP-Ed programming, from the needs assessment, to program planning, to monitoring and evaluation. Appendix B lists additional resources to enhance the understanding and application of an equitable approach to SNAP-Ed evaluation.

FNS has developed SNAP-Ed resources to support agencies in the planning, implementation, and evaluation of their programs. In addition to the SNAP-Ed Evaluation Framework (USDA FNS, 2016), the SNAP-Ed Plan Guidance provides details about program requirements and other aspects of SNAP-Ed programming (USDA FNS, n.d.-a). The SNAP-Ed Needs Assessment Toolkit describes how to conduct a State-level needs assessment to guide all program planning and monitoring decisions (USDA FNS, 2022).
Chapter 1. Select Behavior Outcomes and Indicators

Each of the State’s SMART objectives may be associated with multiple indicators, particularly with the implementation of multilevel interventions. The SNAP-Ed Evaluation Framework includes indicators at different stages of change (i.e., individual goal setting and intention, partnership readiness) and at different levels of the SEM. The SNAP-Ed Evaluation Framework also includes population-level indicators. FNS encourages agencies to report, at a minimum, on the priority indicators (figure 4), but agencies may also draft their own performance indicators for each objective.

*Figure 4. SNAP-Ed Evaluation Framework Priority Indicators*

When selecting relevant indicators, the agency must consider the audience’s and potential partners’ readiness for change. When planning direct education interventions, agencies should also consider which stage of change applies to the audience. The Transtheoretical (Stages of Change) Model (figure 5) shows the stages an individual moves through when changing their behavior—precontemplation, contemplation, preparation, action, maintenance, and termination (Prochaska, 1997). The initial stages of behavior change align with the short-term indicators in the SNAP-Ed Evaluation Framework, in which the introduction to the healthier behavior occurs and the individual begins setting goals with the intention to adopt the behavior.
Aligned with the preparation and action stages of behavior change, the medium-term SNAP-Ed Evaluation Framework indicators are more appropriate for individuals who are already motivated to adopt healthy behaviors. The content of a direct education curriculum aimed at individuals in these stages of change often addresses practical barriers individuals face adopting the behavior, such as preparing fruits and vegetables. Agencies are strongly encouraged to report on medium-term indicators related to healthy eating, food resource management, and physical activity at the individual level (figure 4). SNAP-Ed programs may use long-term indicators to follow up with direct education participants after the completion of the class series to assess behavior change maintenance.

Indicators and behavior outcome measures enable agencies to track progress toward State goals and objectives. To select individual-level outcome measures, agencies must consider the primary behavior changes they expect direct education participants to adopt. In some cases, those may be broad dietary improvements, but interventions often prioritize more specific behaviors, such as reducing intake of sugary drinks. When selecting behavior outcomes and indicators, agencies should consider how multilevel interventions, through PSE and social marketing approaches, could support the adoption of the changes.

**In Practice**

An agency sets a goal and a corresponding objective related to healthy eating habits. Through focus groups conducted as part of the needs assessment, the agency learns that 18–25-year-olds are motivated to eat more vegetables but know little about cooking them and are dissatisfied with the stock and quality of vegetables in their neighborhood stores. In this case, the agency may consider a medium-term indicator related to healthy eating (MT1) at the individual level. The agency has few partnerships with local food retailers, so it chooses a short-term indicator related to needs and readiness (ST5) among potential retail partners. The needs assessment and target audience helped shape ambitious but realistic goals and objectives related to healthy eating, and the agency prioritized tracking MT1 and ST5 among young adults.

The agency could track outcomes on whether participants ate more than one kind of vegetable throughout the day or week (MT1d) or servings of vegetables consumed per day (MT1m). The agency might also want to track other outcomes related to healthy eating, such as fruit consumption or drinking fewer sugar-sweetened beverages. These decisions should be guided by the needs assessment findings.

Agencies have multiple audiences and uses for their behavior outcome data. Agencies should consider the SNAP-Ed eligible community’s priorities and motivations for health-related behavior. FNS encourages agencies to seek input from the community as part of
the needs assessment and throughout program planning and then clearly state how that input influenced programming decisions. When selecting interventions based on community input, agencies should consider what success looks like for the target audience. Agencies must also consider reporting requirements and what outcome findings to share with program partners and other groups interested in SNAP-Ed.
Chapter 2. Plan Intervention Approach

Once agencies identify the behavior outcomes they plan to influence, they must determine the most effective approach. In the context of direct education, that means selecting a curriculum designed to achieve the identified outcomes. The SNAP-Ed Toolkit website is a good starting place for finding evidence-based direct education curricula. In addition to direct education, agencies should consider multilevel approaches that complement one another. Specifically, FNS encourages agencies to incorporate PSE changes into their SNAP-Ed projects to help create supportive environments for the SNAP-Ed target audience where the healthy choice is the easy choice. Different processes will be necessary for tracking outcomes associated with changes in environmental settings and among sectors of influence.

When considering direct education curricula, agencies should consider the individual-level factors that influence the behavior (e.g., knowledge and skills) and the broader context related to those behaviors (e.g., access to healthy foods). Developing projects that address multiple levels of the SEM increases the likelihood that individuals will adopt the behavior. It is easier to choose healthy foods and be active when the environment supports those choices. Agencies must also understand their audience—what motivates them? What are their health priorities? What do they perceive as unrealistic? These considerations will help agencies focus on more effective interventions.

Established curricula often have supporting materials that describe the original logic model or theory of change (see appendix B for resources on the theory of change), the targeted behavior outcomes, and the evidence base. Agencies should review these materials, particularly the study designs used to establish the intervention’s evidence base, when selecting existing interventions. Agencies should consider the volume and the strength of evidence for this assessment (figure 6) to understand how and why a desired change may be associated with an intervention. The intervention’s developers may make supporting materials publicly available; alternatively, agencies can ask the developers of the intervention for more information. The SNAP-Ed Toolkit may also include links to an included intervention’s evidence base (USDA FNS, n.d.-b).

Relevant Terms

Project is defined as an intervention or a cluster of interventions or activities executed by a single agency with common goals, intended outcomes, target audiences, and implementation setting types.

Interventions are a specific set of evidence-based, behavior-focused activities or actions to promote healthy eating and active lifestyles.

Direct education is an evidence-based, behavior-focused nutrition education and physical activity intervention conducted at the individual and interpersonal levels with an intensity and a duration that supports behavior change and allows for active engagement in person, in a live online format, or through interactive media.
Agencies may need to prioritize which behavior outcomes they can address with a single intervention or project. For example, if an agency aims for participants to decrease sugary drink consumption and increase vegetable consumption, it may need to prioritize the behavior change supported by the intervention’s evidence base. The agency may also consider the feasibility of the chosen outcomes to select an appropriate intervention.

In addition to reviewing the outcomes supported by the evidence base, agencies should consider whether the intervention is appropriate for their target audience, such as whether the material will translate to the intended audience or whether it was designed for an entirely different audience (e.g., age group, cultural background, life stage).

Agencies may consider adapting interventions to make them more suitable for their audience. Agencies should be aware that, as they make changes to an intervention, the existing evidence base may no longer be applicable. When a curriculum is not implemented with high fidelity, agencies should determine whether the curriculum is still appropriate for the desired outcomes. Table 1 provides guiding questions to help agencies reflect on whether the intervention is a good fit for the selected outcomes.

Planning interventions requires balance; evidence-based interventions that address an agency’s priority outcomes and meet the needs of its target audience may not exist. In these cases, agencies should consider the target audience and overarching goals if they need to change indicators or adapt a curriculum. For example, an intervention highly relevant to an agency’s target audience may have weak evidence of its ability to increase the number of servings of fruits and vegetables eaten per day (medium-term outcomes) but strong evidence of its ability to improve willingness or intention to try new fruits and vegetables (short-term outcomes). The agency must determine whether it is more appropriate to shift to a short-term outcome and an intervention that will be more relevant to the target audience. The needs assessment can help guide these decisions.

Agencies are continually implementing interventions, so they may need to consider the evidence base and fidelity of their interventions to determine whether current

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**Figure 6. Strength of SNAP-Ed Study Designs**

<table>
<thead>
<tr>
<th>Weak</th>
<th>Moderate</th>
<th>Strong</th>
<th>Strongest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Includes only interviews or focus groups that provide anecdotal evidence—not reliable as an evidence base</td>
<td>Includes only a treatment group; data collected before and after the intervention</td>
<td>Includes both a control group and an intervention group; data collected after the intervention</td>
<td>Includes both a control group and an intervention group; data collected before and after the intervention</td>
</tr>
</tbody>
</table>

**Relevant Terms**

**Fidelity** refers to the extent to which an intervention is implemented as intended to achieve the expected results.
programming addresses the intended outcomes. States are required to conduct comprehensive needs assessments at least every 3 years (7 C.F.R. §272.2(d)(2)(iv)2), and that process should include reviewing current interventions to ensure they align with updated findings, priority outcomes, and target audiences.

Table 1. Guiding Questions to Determine Whether Curriculum Is Appropriate for Desired Outcomes

<table>
<thead>
<tr>
<th>Curriculum Component</th>
<th>Guiding Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation plan</td>
<td>Will you make changes to the curriculum?</td>
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<tr>
<td></td>
<td>Will you adhere to a minimum number of sessions participants must attend (e.g., participants must attend at least four of six sessions to participate in data collection)?</td>
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<td></td>
<td>Will you change the original implementation and data collection timeline (e.g., the intervention was designed for lessons to be delivered weekly, and your agency will deliver them monthly)?</td>
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<td></td>
<td>Will the data collection method be different (e.g., the evidence base was established with a pre- and a postsurvey, and you will only use a postsurvey)?</td>
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<tr>
<td></td>
<td>Is the intervention culturally relevant (e.g., do the foods/recipes and examples match participant experiences and lifestyles)?</td>
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<tr>
<td></td>
<td>Do differences in educational attainment, reading level, or language limit your participants’ ability to understand content (e.g., the curriculum was designed for high schoolers, and your agency is delivering it to adults)?</td>
</tr>
<tr>
<td></td>
<td>Could certain external factors change how participants experience the intervention (e.g., a public health emergency or natural disaster that may change how participants access and prepare healthy foods)?</td>
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<tr>
<td></td>
<td>Are opportunities available for the physical activities provided as examples in the intervention?</td>
</tr>
<tr>
<td>Audience</td>
<td>Are grocery stores present in the community, and, if so, do they carry a variety of healthy, affordable, and culturally appropriate foods?</td>
</tr>
<tr>
<td>Setting</td>
<td>Do seasonal variations affect participants’ ability to exercise outdoors or acquire a variety of healthy, affordable foods?</td>
</tr>
<tr>
<td></td>
<td>How does access to transportation affect participants’ ability to adopt expected behavior outcome changes?</td>
</tr>
<tr>
<td></td>
<td>Is your community walkable/connected?</td>
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</tbody>
</table>

Chapter 3. Choose the Measurement Tool

After agencies identify which behavior outcomes to measure and which curriculum to implement, they should look for corresponding measurement tools. This process involves determining how the agency will measure participants’ baseline behavior and behavior after the direct education class. Agencies can measure outcomes by using a survey, which consists of many measurement tools, and each measurement tool is associated with one or more items (figure 7). Some curricula have corresponding measurement tools or surveys; for those that do not, agencies may choose from available tools or develop their own.

The ability to determine a causal relationship between the intervention and the behavior change is affected by the number of participants for which data are collected, the possibility that changes in behavior were related to chance, and the ability to analyze individual-level behavior before and after the intervention. While agencies may not be able to draw causal conclusions from their data, evidence-based curricula already have demonstrated outcomes, and collecting additional outcome data can ensure the intervention is working as expected.

**Figure 7. Survey Components**

Find Existing Measurement Tools

Many measurement tools assess behavior outcomes related to healthy eating, food resource management, and physical activity. Agencies may review existing surveys to identify appropriate measurement tools for assessing selected behavior outcomes. If selecting a validated survey instrument, agencies should use it as intended; using only a portion of a validated survey instrument could affect its validity.
Agencies may access the following resources for additional measurement tools relevant to the SNAP-Ed Evaluation Framework and performance indicators:

- **The SNAP-Ed Evaluation Framework website** provides background information on each Framework indicator—a list of potential outcomes and measurement tools appropriate for use with adult, child, and youth populations.

- **The SNAP-Ed Toolkit website** helps SNAP-Ed State and implementing agencies identify and implement evidence-based, peer-reviewed obesity prevention and PSE interventions to include in their SNAP-Ed plans. These interventions comply with *SNAP-Ed Plan Guidance* (USDA FNS, n.d.-a) requirements on multilevel interventions and public health approaches that reach the SNAP-Ed target audience. The website also features a literature database to assess the evidence base for Toolkit interventions.

- **The SNAP-Ed Connection website** contains measurement tools for each Framework indicator. Agencies can filter to view tools by indicator or intervention characteristics (e.g., audience age).

If the appropriate measurement tools to assess a behavior outcome are not available through SNAP-Ed resources, agencies have several options:

- **Registries of measurement tools** focused on diet and physical activity typically contain information that may help agencies quickly assess the tools for potential use. Measurement tools in registries typically undergo a quality review process.
  - **The National Collaborative on Childhood Obesity Research Measures Registry** (n.d.) is a searchable database of diet and physical activity measurement tools.
  - **The Register of Validated Short Dietary Assessment Instruments** (National Cancer Institute, 2023) is a searchable database of more than 135 surveys; each may contain several measurement tools.

- **Published literature** includes studies that describe measurement tools and data collection approaches that may be appropriate for the intervention. Some peer-reviewed publications also present validity and reliability information for a particular measurement tool or summarize available measurement tools. Agencies can find relevant publications by searching one of several websites (e.g., PubMed, Science Direct, Google Scholar) for measurement tools related to a specific outcome. Searching published literature for measurement tools has disadvantages, including the time needed to review search results and the cost to purchase articles.

Once agencies identify available measurement tools, they determine whether to use them as is, adapt them, or create new tools to measure selected behavior outcomes.
Chapter 4, Compile the Survey and Establish the Protocol, includes additional strategies for developing a survey.

**Assess Measurement Tools**

FNS encourages agencies to use available measurement tools instead of modifying them or creating new ones. Using available measurement tools saves time and resources compared with modifying or creating new tools. Table 2 outlines considerations for agencies when determining whether a behavior outcome measurement tool is appropriate for their use. These considerations may also help agencies recognize how certain measurement tools might introduce bias through the wording of the tools (Choi & Pak, 2005), such as leading respondents to a specific answer. Agencies can also introduce bias through the survey design and administration. The next section will cover considerations for administering surveys.

### Table 2. Considerations for Selecting Available Measurement Tools

<table>
<thead>
<tr>
<th>Topic</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fit</strong></td>
<td>How well does the measurement tool align with the intervention curriculum and implementation plan?</td>
</tr>
<tr>
<td></td>
<td>- <strong>Connection.</strong> A clear link is apparent among intervention objectives, the selected outcome, and the measurement tool.</td>
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<tr>
<td></td>
<td>- <strong>Delivery method.</strong> The delivery method of the measurement tool is appropriate for the delivery method of the intervention. For example, a virtual class would use an online survey instead of a paper survey.</td>
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<tr>
<td></td>
<td>- <strong>Readability.</strong> The measurement tool is written in plain and easy-to-understand language. All else equal, lower reading levels are preferred (sixth grade or lower).</td>
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<tr>
<td></td>
<td>- <strong>Length.</strong> The measurement tool can be completed in the time provided. All else equal, shorter is preferred.</td>
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<tr>
<td></td>
<td>- <strong>Language.</strong> Content is available in the language(s) needed for your audience.</td>
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<tr>
<td><strong>Equity approach</strong></td>
<td>How well does the measurement tool consider the audience?</td>
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<td></td>
<td>- <strong>Collective input.</strong> Community members or past participants review tools and inform decision making on which tool best fits the audience.</td>
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<tr>
<td></td>
<td>- <strong>Cultural relevance.</strong> Items, answer options, examples, and pictures are appropriate and relevant for your audience.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Person-first language</strong> is used (e.g., “people who experience food insecurity” rather than “food-insecure people”).</td>
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<tr>
<td></td>
<td>- <strong>Asset-based language</strong> is used (e.g., “supports mothers in healthy meal preparation” rather than “reduces fats and oils mothers use to prepare meals”).</td>
</tr>
<tr>
<td><strong>Valid and reliable</strong></td>
<td>Has the measurement tool been evaluated to confirm it measures accurately and consistently over time and across population subgroups?</td>
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<tr>
<td></td>
<td>- <strong>Validity</strong> refers to a measurement tool’s ability to capture the information on the topic of interest.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Reliability</strong> refers to a measurement tool’s ability to capture information consistently over time with repeated assessments and across diverse groups.</td>
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Analysis

How well does the measurement tool collect the appropriate behavior change measures?

- **Sensitivity.** Will the measurement tool detect only large behavior changes, or can it also detect smaller behavior changes? Continuous measures and categorical measures (see table 4) with more response options are more likely to detect changes.

- **Analysis guidance.** Does the measurement tool come with guidelines for how to analyze data, and does the agency have staff or a consultant with the necessary skills? Some measurement tools have complex scoring rubrics, while others use a simple average across items. All else equal, agencies should choose measurement tools they understand, or reach out to someone with the appropriate expertise for support.

When deciding whether to use or modify an available measurement tool or create a new one, agencies may choose to—

- Review related procedures in the current year’s SNAP-Ed Plan Guidance and discuss adaptation or development ideas with the FNS SNAP-Ed Regional Coordinator.
- Draw on staff knowledge of the intervention and target audience.
- Consult staff or a contracted evaluator.
- Think about staff capacity (e.g., evaluation expertise) and available resources (e.g., time and budget) necessary to modify or create a new measurement tool compared with using one already available.
- Consult with the developer of the intervention or measurement tool.

If available measurement tools are appropriate for each behavior outcome, agencies may advance to chapter 4, *Compile the Survey and Create the Protocol*. The remaining subsections of chapter 3 discuss modifying existing tools and creating new ones.

**Modify Existing Measurement Tool**

If available measurement tools are not appropriate for assessing selected behavior outcomes, modifying a tool to meet agency needs may be possible (table 3). Modifying a measurement tool usually takes less time and fewer resources than creating a new tool. Agencies should limit modifications to those necessary to make the tool appropriate for the intervention and audience. Agencies should consider whether modifications are extensive enough to require validity and reliability testing, discussed later in this section. Agencies may want to consult with the original developer of the intervention and measurement tool to assess the appropriateness of planned modifications. Agencies should consider seeking input from the intervention’s priority population about modifications.
Table 3. Common Modifications to Improve Measurement Tool Fit for Intervention or Audience

<table>
<thead>
<tr>
<th>Measurement Tool Component</th>
<th>Modifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivery method</td>
<td>Measurement tools are typically designed and tested using a particular mode of administration (e.g., paper and pencil). Since the beginning of the COVID-19 pandemic, virtual delivery of SNAP-Ed interventions once conducted in person became common. Agencies may need to modify available measurement tools to conduct data collection virtually (i.e., web- or application-based). Appendix B includes additional resources to learn about developing and modifying tools for electronic administration.</td>
</tr>
<tr>
<td>Language translation</td>
<td>Translating tools into the language(s) audiences read and speak is an appropriate modification. Agencies should avoid “on-the-fly” translation during data collection because it may create data quality issues. Adding wording that helps respondents understand the item or response option as originally intended may improve data accuracy. For example, instructions explaining the meaning of “moderate to vigorous physical activity” add clarity.</td>
</tr>
<tr>
<td>Valid and reliable</td>
<td>Modifying wording to address a specific limitation of the current wording also helps ensure data accuracy. For example, agencies may choose to replace examples of fruit not commonly found or consumed in the region with more regionally and culturally relevant examples.</td>
</tr>
</tbody>
</table>

Create Measurement Tool

If a new measurement tool is necessary, agencies may benefit from the following strategies for developing clear, easy-to-answer questions and concise and unbiased responses:

- **Make items short and simple.** Longer items provide more detail but may be harder for the respondent to answer.
- **Select words with the audience in mind.** Avoid technical language and jargon that may be unfamiliar to respondents.
- **Test the readability.** Microsoft Word can conduct common readability tests using Flesch-Kincaid Grade Level and the Flesch Reading Ease (Flesch, 1948; Kincaid et al., 1975). Web resources, such as Readable.com, can also help assess readability. Measurement tools should be at a sixth-grade level or lower to ensure accessibility for all audiences.
- **Use neutral framing.** Agencies may unintentionally introduce bias if the participant interprets a question as having the right answer.
- **Ask one thing at a time.** Avoid addressing multiple topics in a single item to promote clarity and response accuracy.
- **Choose an appropriate time scale.** When asking respondents about a behavior over time, select a period of time that fits with the intervention (e.g., “the past 7 days” is likely better than “the past year”).
- **Be specific.** Avoid words that each respondent could interpret differently (e.g., “regularly,” “commonly,” “usually,” “many,” “some,” “hardly ever”).
- **Order items logically.** Group items by topic, response option, and any specific instructions as much as possible.

- **Review an available and well-tested measurement tool** for examples of word choice and response options.

When drafting response options, categorical and continuous responses are most used for measuring behavior outcomes. Table 4 includes a description of these responses and the benefit and the challenge of using each response type. Some items have only categorical responses (e.g., types of physical activity a person engages in), while other items have continuous responses.

Consider an item asking about how often a person eats green vegetables. Categorical response options include “never,” “monthly,” “weekly,” and “daily.” A continuous response option may be the number of days in the past 7 days a respondent ate green vegetables. Continuous responses offer the potential to collect more detailed data (e.g., a specific number of days per week instead of the category of “weekly”).

In some cases, it may be harder for respondents to accurately answer using a continuous rather than a categorical response. For example, respondents may not remember the exact number of days they did an activity but may be able to accurately recall they did something weekly instead of monthly or daily.

### Table 4. Choosing Categorical or Continuous Response Options

<table>
<thead>
<tr>
<th>Categorical</th>
<th>Continuous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responses may be nominal or ordinal:</td>
<td>Responses are a number within a range (e.g., minutes of physical activity, number of servings of vegetables consumed in the previous day)</td>
</tr>
<tr>
<td>- Nominal responses are not numbers and not overlapping (e.g., types of physical activity)</td>
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</tr>
<tr>
<td>- Ordinal responses are put in order from low to high (e.g., never, sometimes, always)</td>
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</tr>
<tr>
<td><strong>Benefit:</strong> Low respondent burden</td>
<td><strong>Benefit:</strong> Greatest potential for precision</td>
</tr>
<tr>
<td><strong>Challenge:</strong> May have lower precision compared with continuous responses</td>
<td><strong>Challenge:</strong> May be more difficult to answer than categorical options</td>
</tr>
</tbody>
</table>

Formal validity and reliability assessments are best practices to ensure the tool is consistently measuring what it is intended to measure, but these formal assessments can be expensive and time consuming. Typically, the developer administers the tool to hundreds of intended respondent group members and then conducts specialized statistical analyses with the data. To mitigate cost and time, agencies may wish to partner with universities or other organizations to use their staff expertise and resources for validity and reliability testing.
Chapter 4. Compile the Survey and Establish the Protocol

Agencies will compile and format their measurement tool(s) in a survey and develop an accompanying data collection protocol to support accurate and consistent data collection efforts.

Compile the Survey

Compiling a series of measurement tools into a single survey is a straightforward process. Agencies should consider the following elements in their survey:

- An introduction explaining the purpose of the data collection to help the participant understand the objectives and planned uses of the data
- Instructions for each question type
- Elements of informed consent, such as (1) an acknowledgment that respondents can opt out of completing the survey at any time without repercussion; (2) confidentiality procedures for responses; or (3) an informed consent cover letter, if applicable
- Transitional text between sections, particularly for changes in flow (e.g., response options, reflection time periods)
- Contact information for respondent questions
- A thank-you to the respondent for their time completing the survey

Agencies should consider the following practices for equitable survey development:

- Include members of the respondent population in the development and review of the survey.
- Ensure the order of items is sensible, the instructions are clear, and the language is accessible and at the appropriate reading level.
- If the instrument is online, participants may be joining from different kinds of devices; make sure it works on mobile devices, tablets, and computers.
- Test sending the instrument to various email platforms to determine whether the transmission is flagged as junk or spam.
- If using email or text, community members engaged with the intervention or survey may help develop authentic language to ensure audiences are less likely to think the message is a scam.

In Practice: Sample Introduction

This survey will ask questions about the food you eat. As you read each question, think about what you have eaten over the past 7 days. There are no right or wrong answers; just choose the answer that is best for you. Your answers will be kept private and confidential. You can choose to not complete the survey at any time or skip any question you do not want to answer. We appreciate your time!
Establish the Data Collection Protocol

A data collection protocol (e.g., figure 8) is a written set of procedures describing the data collection process. Using a data collection protocol helps create consistency across data collectors and increases the quality of data. Conducting a survey without clear and specific instructions for survey administrators may undermine the goal of collecting quality behavior outcome data and result in wasted time and resources.

**Figure 8. Common Protocol Topics for Survey Administrators**

- **Instructions** for how to administer the survey; include a script and direction on what kind of clarification is and is not allowable
- **Establishing trust** with the respondent, which is often included in the script
- **Gaining consent** from the respondent, which should include a separate form for respondents to complete
- **Common respondent questions** about survey items and allowable responses
- **Data security measures** to ensure respondent confidentiality
- **Distribution and collection** procedures for paper surveys
- **Materials** to bring for paper surveys (e.g., writing utensils, consent forms, survey copies)
- **Instructions** to help online respondents navigate to the survey from a link, quick response code, or other delivery method for web-based surveys
- **Introduction** instructions for telephone surveys

Training for individuals administering the survey improves data accuracy and consistency. Trainings should cover the following elements:

- The protocol, including time for survey administrators to ask questions, practice the protocol, and receive feedback from other training participants
- Concepts of equity and cultural sensitivity and awareness, including opportunities for survey administrators to reflect on their own identities and biases
Suggestions for minimizing different kinds of bias and ensuring respondent privacy

Feedback for the survey administrator

Consider including community members in developing the data collection training. Community members may elevate concerns that evaluation respondents may have, highlight important cultural practices to build trust and show respect, and give relevant advice.

**Examples of Data Collection Protocols**

- Centers for Disease Control and Prevention’s A Guide to Conducting Your Own Risk Behavior Survey (2014); appendix B contains an in-person survey administration script, and appendix D contains in-person survey administration instructions

**Pretest and Conduct Survey**

Pretesting the survey is an opportunity for agencies to confirm whether the information collected matches what they expected to collect. Consider pretesting when a survey—

- Includes modified or new measurement tools
- Targets a different audience than originally intended for the available measurement tool

Cognitive interviewing (table 5) is a core component of pretesting and involves interviewing respondents as they complete a survey. The interviewer asks questions to understand respondents’ thoughts and decision-making processes. Each round of interviewing typically includes 5–15 respondents (Willis, 2005) but in practice may vary according to the amount of time and resources available (Beatty & Willis, 2007). The agency makes adjustments to the survey based on interview findings. If changes are substantial, the agency may hold another round of interviews.

Once the survey is pretested and ready for administration, agencies should consider using equitable approaches for data collection. One way to advance equity while also improving evaluation outcomes is to hire community members as survey administrators. Respondents may be more comfortable giving consent to participate in the survey and provide more accurate information if they feel they are interacting with someone who understands them. Hiring community members as survey administrators can also increase equity by giving them an opportunity to develop skills and experience for use in future education or employment.
Table 5. Cognitive Interviewing Elements and Example Questions

<table>
<thead>
<tr>
<th>Cognitive Interviewing Elements and Example Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comprehension</td>
</tr>
<tr>
<td>▪ Is the question understood as intended?</td>
</tr>
<tr>
<td><em>Example:</em> Can you tell me in your own words what this question is asking?</td>
</tr>
<tr>
<td>Recall</td>
</tr>
<tr>
<td>▪ Is it difficult to remember the information or know the answer?</td>
</tr>
<tr>
<td><em>Example:</em> How do you remember what you ate last Tuesday?</td>
</tr>
<tr>
<td>Decisions and judgment</td>
</tr>
<tr>
<td>▪ Is there potential for imprecision or bias?</td>
</tr>
<tr>
<td><em>Example:</em> How comfortable are you reporting the income for your household?</td>
</tr>
<tr>
<td>Response process</td>
</tr>
<tr>
<td>▪ Are the response options representative of all likely answers?</td>
</tr>
<tr>
<td><em>Example:</em> How did you arrive at your answer?</td>
</tr>
</tbody>
</table>

Another way to advance equity is to compensate community members who participate in evaluation planning and survey respondents for their time and effort. If agencies cannot provide financial remuneration, they can consider reimbursing transportation costs, food, or family member care and asking community members what other contributions would be valuable. In some circumstances, financial compensation (e.g., a stipend) and reimbursement are allowed for expenses to participate in evaluation plans and survey design; however, agencies may not use SNAP-Ed funds as a financial incentive for participation in SNAP-Ed program activities, including completing a survey as part of a direct education curriculum. For up-to-date information on allowable uses of SNAP-Ed funds, agencies should refer to the latest edition of the *SNAP-Ed Plan Guidance* and consult with FNS SNAP-Ed Regional Coordinators.

Once design and pretesting are complete, the agency is ready to administer the survey. The timing of survey administration influences how the results can be interpreted (figure 9). Surveys are typically administered before the curriculum is implemented (pretest) and once it is completed (posttest). This timing enables agencies to establish a baseline of the behavior and compare it with the outcome after the intervention. While establishing a causal relationship between the intervention and behavior outcomes is often outside the scope of SNAP-Ed evaluations, the pre- and posttests enable the agency to make inferences about the success of the intervention and analyze trends.

Cross-sectional surveys assess behavior only at a given point. Data from cross-sectional surveys can be helpful in needs assessments, particularly as secondary sources of data such as the Behavioral Risk Factor Surveillance System, but the data are not as useful for assessing behavior changes in smaller groups. Some surveys may be retrospective, and participants self-report their behavior prior to the intervention. This survey type can limit the accurate assessment of changes in behavior.
Some agencies may choose to conduct more comprehensive evaluations by collecting identifying information from program participants and comparing an individual’s pretest survey to their posttest survey to assess individual-level changes. When conducting these types of comprehensive evaluations, agencies must ensure they follow all privacy measures and approved research protocols and obtain institutional review board approval, required for any research that involves people. Another approach that agencies may choose is to aggregate all pretests and all posttests to assess trends within a cohort or group of participants.
Conclusion

Measuring behavior outcomes is an important step in improving the understanding of how SNAP-Ed direct education interventions achieve the program’s overarching goal of encouraging healthy food choices and physically active lifestyles among people eligible for SNAP. Together, SNAP-Ed interventions—direct education, PSE changes, and social marketing—influence multiple levels of the SEM to comprehensively address the factors that affect food choices and activity. Collecting behavior outcome data associated with SNAP-Ed direct education programming also enables agencies to identify program successes and opportunities to better adapt to the target audience.

State needs assessments are the foundation of establishing program goals and objectives, and a State’s goals influence the selection of direct education interventions. Program planning should represent the communities that will participate in the direct education interventions. This toolkit applies the SNAP-Ed Evaluation Framework to the process of measuring progress toward goals and objectives at the individual level and describes how agencies can use, adapt, or create measurement tools to track indicators. The development of measurement tools and surveys offers additional opportunities to center the experience of participants in program planning and monitoring.

While this toolkit focuses on understanding progress toward measurable objectives through the use of quantitative data, agencies should also consider collecting qualitative data from program participants. Giving participants more options to describe the impact of SNAP-Ed programming in a broader, comprehensive context can support agencies in ensuring programming is meeting objectives. Many strategies for collecting and analyzing qualitative data are available, and FNS encourages agencies to consider integrating multiple sources and types of data in their SNAP-Ed monitoring and evaluations.

SNAP-Ed programs that include robust behavior outcome measurement and data from PSE and social marketing interventions help ensure the cyclical process of continuous improvement is effectively applied to achieve SNAP-Ed State goals.
References


Appendix A. Key Terms

- **Direct education** is an evidence-based, behavior-focused nutrition education and physical activity intervention conducted at the individual and interpersonal levels with an intensity and a duration that supports behavior change and allows for active engagement in person, in a live online format, or through interactive media.

- **Fidelity** refers to the extent to which an intervention is implemented as intended to achieve the expected results.

- **Interventions** are a specific set of evidence-based, behavior-focused activities and/or actions to promote healthy eating and active lifestyles.

- A **measurement tool** is a single item or a set of items, such as a scale or an index, that can be used to assess an outcome.

- **Project** is defined as an intervention or a cluster of interventions or activities executed by a single agency with common goals, intended outcomes, target audiences, and implementation setting types.

- **Reliability** refers to a measurement tool’s ability to capture information consistently over time with repeated assessments and across diverse groups.

- A **survey** is an instrument that assesses one or more outcomes; it is often composed of more than one measurement tool.

- **Validity** refers to a measurement tool’s ability to capture the information on the topic of interest.
Appendix B. Supplemental Resources

Incorporating Equity Approaches in Evaluation


**Using Theory to Select Outcomes Measures to Assess Behavior Change**


**Modifying Existing Tools**

**Developing and modifying tools for electronic administration**


Translation


http://www.ccsg.isr.umich.edu/

Other Modifications


Developing New Tools


Cognitive Interviewing


Willis, G. B. (2005). *Cognitive interviewing: A tool for improving questionnaire design*. SAGE. [https://books.google.com/books?hl=en&lr=&id=On1LBQAQBAJ&oi=fnd&pg=PT9&ots=AKSQfBMPel&sig=5DYf_qVAhRhXPaJtyQ_iUqij6mg#v=onepage&q &f=false](https://books.google.com/books?hl=en&lr=&id=On1LBQAQBAJ&oi=fnd&pg=PT9&ots=AKSQfBMPel&sig=5DYf_qVAhRhXPaJtyQ_iUqij6mg#v=onepage&q &f=false)
