

## Automated Self-Administered 24-Hour Dietary Recall (ASA24) Applied Research Program

### Background

Self-reported dietary assessment methods are commonly used to measure food intakes for dietary surveillance, nutritional epidemiology, clinical research, and intervention research. Different methods have been used for different purposes, and each has advantages and disadvantages. For example:

- 1) **Dietary food records** (also called **diaries**) have been used to collect food intake data in real time, but they require highly motivated and literate respondents and are prone to biases attributable to respondents changing their diets on recording days. Documenting intake of all food items often leads to underreporting and/or underreporting. If not automated, this method requires labor-intensive, expensive, and unstandardized data entry and coding.
- 2) The **food frequency questionnaire (FFQ)** is commonly used in large-scale epidemiologic research. It asks respondents about their intake frequency and portion size for a long list of food items. Self-administered by paper and pencil and scanned or administered electronically so that data are easily coded and analyzed, the FFQ's appeal is that it seeks to provide information on typical intake and can be administered quickly and cheaply. Its disadvantages are significant measurement error and bias for some nutrients, lack of comparability across studies using different instruments, and poor detail with respect to exactly what was consumed, preparation methods, and portion sizes.
- 3) The **interviewer-administered 24-hour recall** has long been regarded as the optimal dietary assessment method because it provides the highest-quality and least biased data for a single day. It allows detailed food and portion size information to be collected, and because the data are collected after consumption, this method does not affect a respondent's food choices on a given day. Data are relatively comparable across studies because the query format is open-ended. However, recalls

have limitations related to memory and bias, and assessing [usual intakes](#) requires at least two administrations with statistical modeling. Because recalls have typically been administered by trained professionals, they have previously been costly and impractical in research settings with large sample sizes and/or a need to collect data for multiple days.

### The Automated Self-Administered 24-Hour Dietary Recall (ASA24)

ASA24 is a freely-available web-based software tool that enables automated and self-administered 24-hour dietary recalls. ASA24 can be used by researchers for epidemiologic, intervention, behavioral, or clinical research. Clinicians may use ASA24 for diet assessment and nutrition counseling, and educators may find it to be a useful teaching tool.

ASA24 consists of a **Respondent Web site** used by participants to enter recall data and a **Researcher Web site** used by researchers to manage study logistics and obtain analyses.

The format and design of the Respondent Web site are modeled on the interviewer-administered Automated Multiple Pass Method (AMPM) 24-hour recall developed by the US Department of Agriculture (USDA). The AMPM uses multi-level food probes to accurately assess food types and amounts. Recalls can be completed in English or Spanish.

The Researcher Web site allows researchers, clinicians and teachers to register to use ASA24, obtain usernames and passwords used by participants to access the Respondent Web site, set parameters (e.g., number of recalls), monitor participant progress, and obtain nutrient and food group analyses.

ASA24 is freely available to researchers, clinicians, and teachers.

## Features of ASA24

ASA24 uses an animated guide and audio and visual cues to guide respondents through a 24-hour recall for the previous day from midnight to midnight. Respondents report foods and drinks by browsing categories or searching from a list of foods and drinks available from the USDA's Food and Nutrient Database for Dietary Studies (FNDDS).

The ASA24 Respondent Web site:

- Can be accessed in English or Spanish
- Asks respondents to report eating occasion and time of consumption
- Includes optional modules to query where meals were eaten, whether meals were eaten alone or with others, and television and computer use during meals
- Uses images to assist respondents in reporting portion size
- Allows the respondent to add or modify food and drink choices at multiple points and includes a final review and list of frequently forgotten foods
- Includes an optional module to query dietary supplement intake based on supplements reported in the 2007-08 National Health and Nutrition Examination Survey (NHANES).

Resulting data files available on the Researcher Web site include nutrients, foods, food groups, and variables to calculate Healthy Eating Index scores. ASA24 does not provide feedback to users; rather, researchers can obtain data files and contact users with any findings they choose to share.

## Evaluation of ASA24

ASA24 underwent numerous small-scale cognitive and usability tests during development. Two larger validation studies are currently underway, with results expected in 2013. In a large study of healthy, geographically diverse individuals, the nutrient and food group values of respondents completing ASA24 will be compared to those completing a standardized AMPM interviewer-administered 24HR recall. In a smaller study, investigators will unobtrusively document food and drink consumption as an objective

measure of intake for participants completing either ASA24 or a standard interviewer-administered recall. Analyses will assess differences in validity between the two types of recalls.

## ASA24-Kids

A children's version of the Respondent Web site was released in September 2012. The adaptation of ASA24 for kids, which was led by Dr. Tom Baranowski of the Baylor College of Medicine, included shortening the list of foods and beverages to choose from based on the National Health and Nutrition Examination Survey (NHANES) recall data for children. ASA24-Kids asks fewer detailed questions about food preparation, leading to more default coding of foods. The children's version is intended for kids ages 10 years or older.

## ASA24 Cost and Access

As part of its mission to advance measures and methods for monitoring cancer-related behaviors and other risk factors, the Risk Factor Monitoring and Methods Branch of the Applied Research Program provides tools and resources to the extramural research community. Consistent with that, ASA24 is available for use free of charge to researchers, clinicians, and teachers.

Researchers, clinicians, and teachers can register to use ASA24 in a study, clinic, or classroom by visiting the Researcher site at <https://asa24.westat.com/researchersite.html>.

Additional information on ASA24 is available at [riskfactor.cancer.gov/tools/instruments/asa24/](http://riskfactor.cancer.gov/tools/instruments/asa24/).

## For Further Information

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