PhenX Toolkit

Data Collection Worksheet

Please Note: The Data Collection Worksheet (DCW) is a tool to aid integration of a PhenX protocol into a study. The PhenX DCW is not designed to be a data collection instrument. Investigators will need to decide the best way to collect data for the PhenX protocol in their study. Variables captured in the DCW, along with variable names and unique PhenX variable identifiers, are included in the PhenX Data Dictionary (DD) files.

The National Cancer Institute (NCI) has developed a Self-Administered Automated 24-hour Dietary Recall (ASA24) for use in large-scale nutrition research studies. The format and design of the ASA24 are modeled on the interviewer-administered Automated Multiple Pass Method (AMPM) 24-hour Recall developed by the U.S. Department of Agriculture (USDA). For ASA24-2016, this method was further adapted to add an option for researchers to collect food records. Both recalls and records require multilevel food probes to accurately assess food types and amounts. This tool consists of a Respondent Website (English and Spanish), where data are collected, and a Researcher Website to manage study logistics and obtain analyses.

The ASA24 software is programmed with a food database that includes all foods and beverages available from USDA's Food and Nutrient Database for Dietary Studies (FNDDS) and Food Pyramid Equivalents (FPED) databases, and all dietary supplements available in the National Health and Nutrition Examination Survey (NHANES) Dietary Supplement Database (DSD). In addition, the software includes pictures of foods in multiple portion sizes to help respondents estimate portion size. This ASA24 system incorporates a branching database that allows questions and possible responses to be displayed on the screen for respondent selection. The steps in the interview process include a Meal-based Quick List, Meal Gap Review, Detail Pass, Forgotten Foods, Final Review, Last Chance, and Usual Intake Question. Researchers also have an option to include reminders to report dietary supplements.

The Respondent Website:

- Provides visual cues to instruct participants and enhance use in low-literacy populations (with options to turn off help tips);
- 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, television and computer use during meals, and source where foods/beverages were obtained;
- Flows as per modified USDA Automated Multiple-Pass Method (AMPM) 24-hour

recall for both recalls and records;
- Allows respondents to report foods and drinks by searching from a list of food and drink terms derived from the National Health and Nutrition Examination Survey (NHANES). Search results can be filtered by food group;
- Asks detailed questions about food preparation, portion size, and additions so that food codes from USDA's Food and Nutrient Database for Dietary Studies (FNDDS), USDA's Food Pyramid Equivalents Database (FPED), and the NHANES Dietary Supplement Database (DSDB) can be assigned;
- Uses images to assist respondents in reporting portion size;
- Allows the respondent to add or modify food and drink choices at multiple points during the interview;
- Includes an option to report dietary supplement intake in-line with foods based on supplements reported in the NHANES;
- Includes a Canadian and children's version with an Australian version to be released in 2016;
- Is available in English and Spanish (U.S. versions); and
- Is accessible by individuals with speech and hearing impairments.

The Researcher Website allows researchers, clinicians, and teachers to register a study, set study parameters, manage study logistics, and obtain dietary analyses. The Researcher Website:

For recalls and records:

- Allows researchers to add their own opening and closing text scripts and study logo for use on the Respondent Website;
- Enables researchers to monitor study progress and to obtain a variety of reports, including statistics for complete, incomplete, and upcoming recalls or records for each participant; and
- By late 2016, will allow researchers to provide tailored Respondent Reports of food and nutrient intakes to Respondents.

For recalls only:

- Allows researchers the option to have participants complete a recall in one sitting (with breaks of no more than 30 minutes) or over a longer specified time interval;
- Allows researchers the option to collect recalls for the previous day from midnight to midnight or for the past 24-hours from time of login;
- Produces individual-level nutrient estimates for each food and daily totals based on the USDA's 2011-12 Food and Nutrient Database for Dietary Surveys (FNDDS), food group estimates based on USDA's 2011-12 Food Pyramid Equivalents Database (FPED), and NHANES 2011-12 Dietary Supplement Database (DSD). Versions of ASA24 prior to ASA24-2016 use older versions of these databases. These data can be analyzed by researchers or used to

provide reports to respondents.

For records only:

- Allows researchers to collect consecutive or nonconsecutive-day records
- Allows researchers to collect any number of record days

Additional information:

NCI is currently providing the ASA24 at no cost to researchers and clinicians. Costs that might be incurred by researchers are systems and labor costs associated with providing participant IDs, dates to complete, and other information to NCI as well as costs associated with contacting participants to complete the ASA24.

To formally evaluate the impact of the change in mode of administration from the interviewer-administered AMPM 24-hour recall to a self-administered web-based recall, two studies were conducted using ASA24-2011:

One large study of healthy individuals in a variety of geographic regions compared the nutrient, food group, and supplement intake estimates from respondents completing ASA24 to those completing a standardized AMPM interviewer-administered recall.

- Findings indicate comparability between the ASA24 system and AMPM in reported intakes and response rates, and that respondents prefer ASA24 system over AMPM.
- Another manuscript from this study assesses comparability of reported dietary supplement usage between AMPM and ASA24 system. Findings also indicate comparability. This manuscript is under review.
- Findings regarding the impact of default coding of free text options in the ASA24 system found that, in large studies, default coding led to intake estimates similar to those when free text was edited to fix inconsistencies.

Thompson, F. E., Dixit-Joshi, S., Potischman, N., Dodd, K. W., Kirkpatrick, S. I., Kushi, L. H., Alexander, G. L., Coleman, L. A., Zimmerman, T. P., Sundaram, M. E., Clancy, H. A., Groesbeck, M., Douglass, D., George, S. M., Schap, T. E., & Subar, A. F. (2015). Comparison of interviewer-administered and automated self-administered 24-hour dietary recalls (ASA24) in three diverse integrated health systems. *American Journal of Epidemiology, 181*(12), 970-978.

Zimmerman, T. P., Potischman, N., Douglass, D., Dixit-Joshia, S., Kirkpatrick, S. I., Subar, A. F., McNutt, S., Coleman, L. A., Alexander, G. L., Kushi, L. H., & Thompson, F. E. (2015). The effect of editing open-ended text responses on nutrient and food group estimates from the Automated Self-Administered 24-Hour Dietary Recall (ASA24). *Procedia Food Science, 4,* 160-172.

In a second smaller study, investigators unobtrusively documented food intakes of respondents randomly assigned to one of two groups. One group completed a recall using the ASA24 system and the second group completed a standardized AMPM interviewer-administered recall. Analyses considered how each of these recalls performed relative to true intake.

- The AMPM performed slightly better than the ASA24 system relative to true intake for matches (the proportion of items consumed that were reported), exclusions (foods consumed but not reported), and intrusions (food reported but not consumed). There was little evidence of differences between the AMPM and the ASA24 system in true and reported energy, nutrient, and food group intakes or portion sizes. Overall, the ASA24 system performed well and comparably to the AMPM.

Kirkpatrick, S. I., Douglass, D., Zimmerman, T. P., Thompson, F. E., Subar, A. F., Kahle, L. L., George, S. M., Dodd, K. W., & Potischman, N. (2014). The Automated Self-Administered 24-hour Recall (ASA24) performs well relative to a measure of true intakes and to an interviewer-administered 24-hour recall. *American Journal of Clinical Nutrition, 100,* 233-240.

Additional information about the ASA24, including sample analysis files and data dictionaries, can be found on researcher link of the National Cancer Institute, ASA24 website: http://epi.grants.cancer.gov/asa24/.

Protocol source: https://www.phenxtoolkit.org/protocols/view/51202