ASA24

Automated Self-Administered 24-Hour Dietary Assessment Tool

Instructions for the ASA24® Researcher Website:

ASA24-2020 (U.S. version only)

Updated October 2021

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1. About ASA24

The Automated Self-Administered 24-hour (ASA24) Dietary Assessment Tool is a web-based tool that enables multiple, automatically coded self-administered 24-hour recalls and/or multi-day food records also known as food diaries. The National Cancer Institute (NCI) provides ASA24 to the research community at no cost.

ASA24 is comprised of two websites:

1. The **respondent website** is used to collect intake data from study participants: https://asa24.nci.nih.gov
2. The **researcher website** is used to manage study logistics and access applied nutrient and food group data files: https://asa24.nci.nih.gov/researchersite

The researcher website serves a variety of users, collectively referred to as "researchers" in this document, including:

- Researchers conducting epidemiologic, interventional, behavioral or clinical research
- Clinicians collecting 24-hour recalls or food records from patients to obtain complete nutrient analysis
- Educators teaching students to analyze intake or compare diet assessment methods

Researchers determine whether recalls or food records best suit their needs, as well as how, when and how many intakes should be collected to produce optimal data. Information about choosing an assessment method can be found in the National Cancer Institute's (NCI) Dietary Assessment Primer at https://dietassessmentprimer.cancer.gov.

The ASA24 instrument:

- Flows as per modified United States Department of Agriculture (USDA) Automated Multiple-Pass Method (AMPM) for 24-hour recalls, which was further adapted for collection of food records (also known as food diaries)
- Allows researchers to select options for recalls, including:
    - selecting single or multiple recalls per respondent,
    - specifying timing of a recall, either from midnight-to-midnight or for the past 24-hours from time of login
    - choosing defined dates a respondent is allowed to login to the system (called "scheduled recalls") or allowing respondents' logins to work on any date during the study period (called "unscheduled recalls")

- Allows researchers to specify the collection of multiple single-day or consecutive-day food records
- Asks respondents to report eating occasion and time of consumption
- Allows respondents to search and filter to find foods, drinks and supplements
- Asks detailed questions about food form, preparation, portion size, and additions, so that food codes can be assigned
- Uses images to assist respondents in reporting portion size
- Prompts respondents to add or modify food, drink, and supplement choices at multiple points during the recall or record
- Includes optional modules to query where meals were eaten, whether meals were eaten alone or with others, television and computer use during meals, source of foods consumed, remind respondents to report supplements, create a respondent nutrition report, and capture meal timing and sleep
- Is available in English and Spanish
- Is accessible by individuals using assistive technologies, such as screen readers
- Offers an optional Respondent Nutrition Report that researchers can choose to make available to respondents. The Respondent Nutrition Report provides feedback to respondents regarding how their intake on any given reporting day compares to country-specific dietary guidance and nutrient requirements
- A recipe function that allows respondents to report, save and modify recipes for use in subsequent recalls or records
- New in the 2020 version: an improved respondent search with better-quality matches and more popular terms ranking at the top.

Information about the current and previous versions of the ASA24 respondent websites, the respondent website methodology, and ASA24 system requirements is available on NCI's ASA24 website at https://epi.grants.cancer.gov/asa24/.

The remainder of this document provides detailed instructions on the use of the ASA24-2020 researcher website. Instructions for earlier versions of the researcher website are available at https://epi.grants.cancer.gov/asa24/researcher/instructions.html.

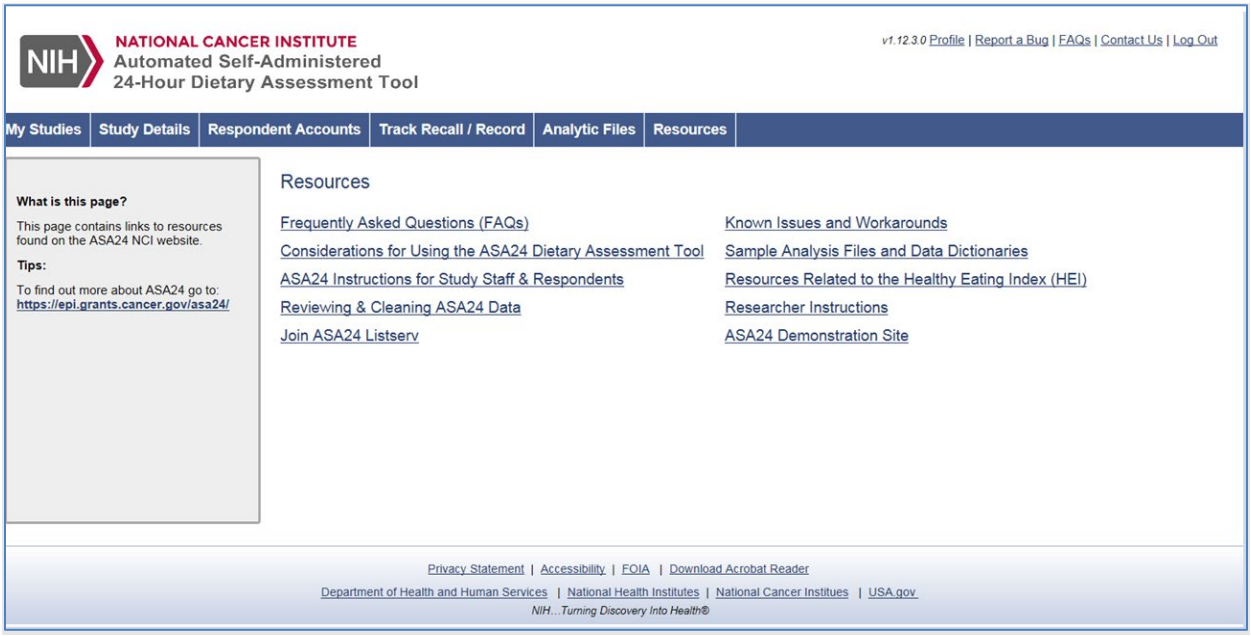
2. Key Considerations for Researchers

Definitions for ASAS24-specific terms and abbreviations can be found in the Key Terms section at the end of this document. In this section, the first occurrence of each key term is linked to its definition in the Key Terms section.

General information about the ASA24 system is available on the NCI's ASA24 Informational website at https://epi.grants.cancer.gov/asa24/. This website includes resources, such as Frequently Asked Questions (FAQs), documents that can be used for funding and ethics proposals, help documents to provide to study respondents, a list of known ASA24 issues and workarounds, links to relevant publications, and SAS codes for calculating the Healthy Eating Index. Links to these resources are also available on the researcher website.

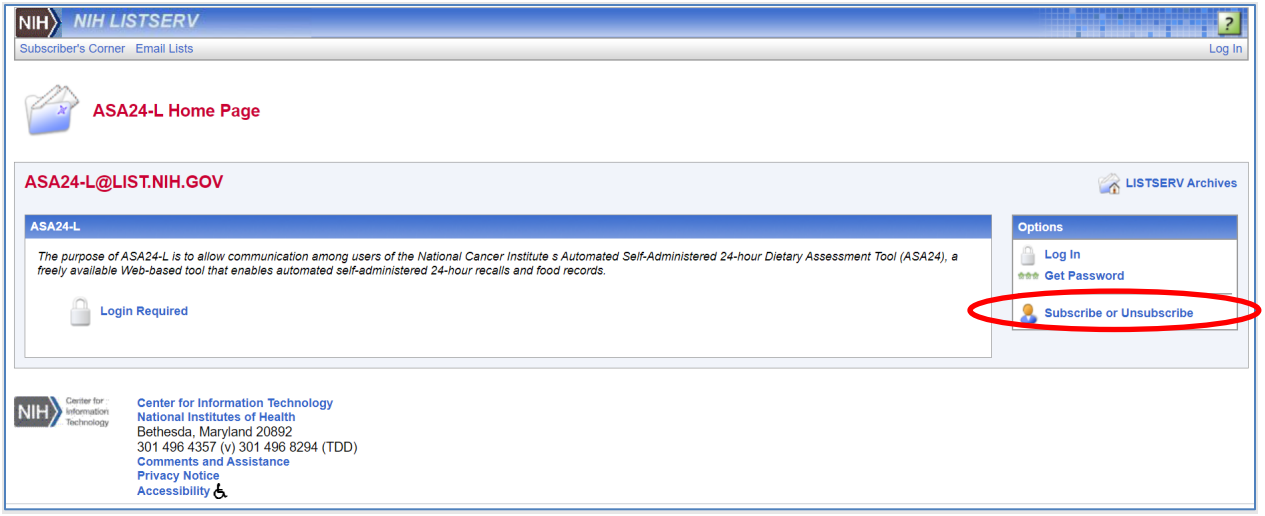
Sample analysis files and data dictionaries are available for download from the NCI website (https://epi.grants.cancer.gov/asa24/researcher/sample.html) and the researcher website under the **Resources Tab** (Figure 2-1). Links to the data dictionaries can be found in Appendix C.

Figure 2-1. Links on the researcher website to additional ASA24 resources on the NCI website.



A Listserv is available to current and potential researchers to communicate with one another at https://list.nih.gov/cgi-bin/wa.exe?A0=ASA24-L

Figure 2-2. Subscribe to the ASA-24 listserv.



Should my study use *scheduled* or *unscheduled* recalls?

When setting up a 24-hour recall study, researchers can select either *scheduled* or *unscheduled* (i.e. ad hoc) administration.

> ***Researchers should determine whether to use scheduled or unscheduled recalls before creating respondent usernames and passwords. Once respondent accounts have been created, a study cannot be changed between unscheduled and scheduled. To switch, you must delete existing respondent accounts, update the Study Type setting, and then create new respondent accounts.***

In a study with *scheduled* recalls, the pre-determined intake dates are designated during the initial study setup using either the Respondent Accounts Wizard or the Import File (see Create Respondent Accounts). The respondent website will permit respondent access only on the reporting dates corresponding to the scheduled intake dates. Dates can be specified for multiple attempts for each recall in case the respondent does not complete the recall on the first assigned date.

In some cases, *unscheduled* recalls may be preferred due to the unpredictable nature of clinic visits or classes. In a study with *unscheduled* recalls, respondent access to ASA24 is not limited as long as the respondent has not reached the maximum number of recalls specified by the researcher and/or the intake date falls within the study dates specified by the researcher.

Should my study use *consecutive*- or *single*-day records?

A food record can be comprised of one/*single* day or several *consecutive* days as determined by the researcher. Either option can include multiple collection time periods; for example, a study can include more than one single-day record (e.g. collect four separate single-day records) or more than one consecutive-day records (e.g. collect two separate 4-day records).

> ***Whether to use* consecutive-** ***or* single-** ***day records should be decided before creating respondent usernames and passwords. Once respondent accounts have been created, a study cannot be changed between consecutive- and single-day records. To switch, you must delete existing respondent accounts, update the Study Type setting, and then create new respondent accounts.***

When selecting *consecutive*-day records, researchers must specify the number of consecutive days within a food record. This refers to the maximum number of consecutive days for which respondents will report. If collecting multiple consecutive-day records, the number of consecutive days for each record will be the same.

How are issues experienced by respondents resolved?

It is the responsibility of the researcher to provide technical assistance to their respondents. To support respondent questions about ASA24, it is recommended that study staff familiarize themselves with the instrument.

The ASA24 Help Desk (https://epi.grants.cancer.gov/asa24/support/contact.html) is available to researchers only. The help desk supports issues with the researcher website and can work with researchers to resolve respondent issues. To report a bug in ASA24, go to https://epi.grants.cancer.gov/asa24/support/report.html.

Common issues include:

- Login trouble: If respondents have forgotten their account login information and are locked out of the system, researchers can reset and unlock respondent accounts via the researcher website. If respondents know their login information, but are still locked out of their accounts, it may be because access is denied to respondents if the intake date falls outside the dates of the study as defined by the researcher; in this case, researchers can update the dates on the **Study Details** tab.
- Forgotten foods: The AMPM methodology implemented by ASA24 provides multiple opportunities to report items. Sometimes respondents remember a food or drink they consumed after completing an intake day. For recalls, the respondent cannot log back in

to modify the data. For records, respondents can log back in up to 24-hours after the last recording day to make changes to any day within the record.

To capture a missing item(s) after the recall or record is closed out, a researcher can enter the item(s) in a new intake and combine the intakes outside of ASA24. When combining, the "foodnum" and "codenum" variables will need to be adjusted.

3. System Requirements

The ASA24 researcher website is designed to optimally display on a monitor size at least 10 inches. Additionally, a screen resolution of 1024 x 768 or larger is recommended for optimal display of the data grids.

Because data entered on one screen may affect the display of data on another screen, ASA24 does not support the use of the **Back** or **Forward** buttons of your web browser.

The respondent website is designed to display on all size screens, including mobile devices such as smartphones and tablets. A recent version of a web browser capable of displaying HTML5 is required.

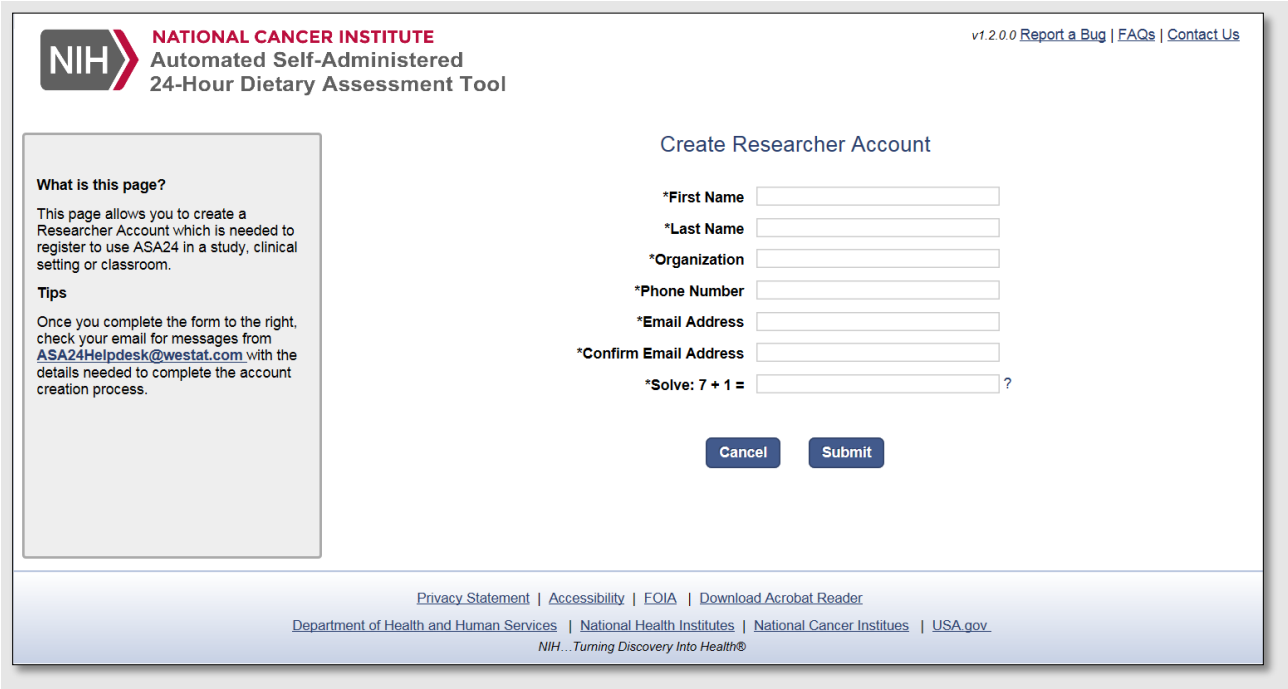
4. Getting Started with ASA24: Create a Researcher Account

The first step to using ASA24 for your study is to create a researcher website account by visiting https://asa24.nci.nih.gov/researchersite and selecting the **Register** button. Complete the short form by providing contact information (Figure 4-1) and select **Submit**.

You will receive two emails from ASA24Helpdesk@westat.com. One will contain a username and a temporary password. The second will contain general information about using ASA24.

Once you log in with the temporary password, you will be prompted to change the password. You may then create a new study or explore the site.

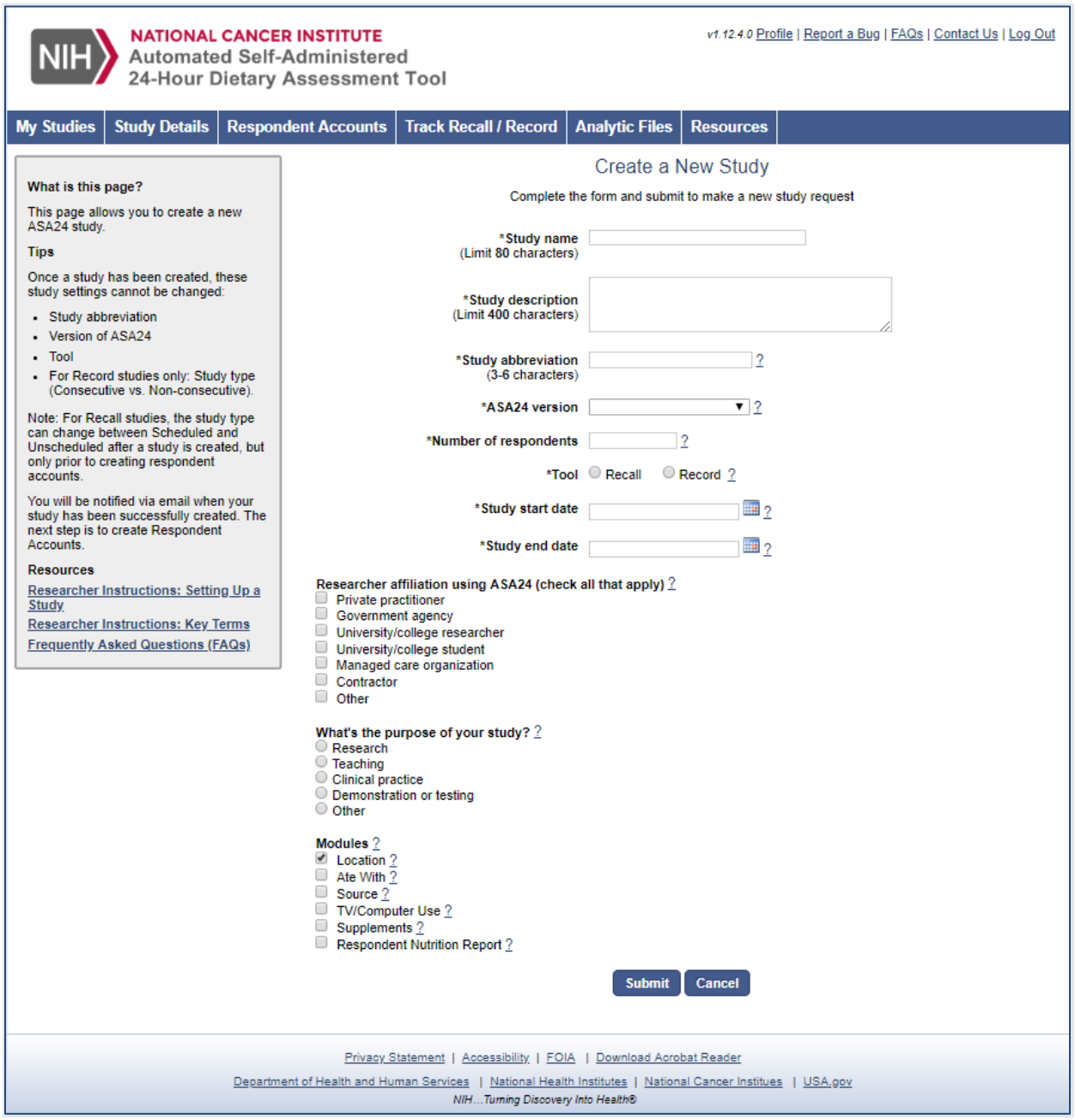
Figure 4-1. Registering to use the ASA24 system.



5. Create a New Study

To create a study, visit the **My Studies** tab and select the **Create a New Study** button. This button will take you to a form (Figure 5-1) where you will configure your study by specifying parameters as defined below.

Figure 5-1. Create a new study.



Study Parameters

Select the question mark "?" next to each field on the form for additional information.

Study Abbreviation: This eight-digit code is made up of letters and must be unique in ASA24. It is used to construct unique usernames. Respondent usernames are a combination of the *study abbreviation* and a number known as the Study ID that is specified during the respondent account creation process. For example, if a study's abbreviation is FRUIT, sample usernames may be FRUIT101 or FRUIT1001. For this reason, it is a good idea to choose an abbreviation that will be meaningful to your respondents.

Study Description: This field has a 200-word limit. The description will only be viewed by the researcher, their study staff, and the ASA24 Help Desk (ASA24Helpdesk@westat.com) staff.

> ***Example:***
>
> *This is a cohort study with 100,000 respondents investigating diet and risk for later chronic diseases, including cardiovascular disease, diabetes, and a variety of cancers. The baseline data will be collected over the next five years and the follow-up will be conducted subsequently.*

Number of respondents: The anticipated number of respondents participating in a study. This information can be updated as needed after a study has begun.

Tool: Choose the type of intake tool to be collected, either a 24-hour recall or food record. The tool selected will determine which parameters follow. For more information about how to select a tool, see the Dietary Assessment Primer (https://dietassessmentprimer.cancer.gov/).

For studies using ASA24 as a 24-hour recall, the following parameters apply:

> **Study Type:** Choose whether your recalls will be *scheduled* or *unscheduled*.
>
> When *scheduled*, the researcher will designate specific intake dates for each respondent. Respondents will only be allowed to log in to the respondent website on the reporting dates corresponding to these intake dates.
>
> When *unscheduled*, respondents can access ASA24 on any day during the study period defined by the *start and end dates*. When a respondent reaches the maximum number of recalls as determined by the researcher, access to ASA24 will be denied. *Unscheduled* recalls may be preferred in clinical or classroom settings due to the unpredictable nature of the visits/classes or in a study in which the researchers prefer more internal controls related to scheduling recalls.
>
> ***Note that study type cannot be changed once respondent accounts have been created.***

Number of Recalls (per respondent): This number defines the maximum number of recalls allowed for each respondent. ASA24 does not impose any limit on this number. Recalls that have been started but not completed are counted toward the maximum. This parameter can be changed after a study has begun.

Intake Time Frame: Studies can be set up so that respondents are prompted to report their intake for one of two time periods:

1. From *Midnight to Midnight* the previous day. That is, the day before the reporting date.

or

2. For the *Last 24 Hours*. That is, the 24 hours preceding the respondent's first login time on the reporting date.

This parameter can be updated after a study has begun.

Number of Logins Allowed: Respondents can complete their recalls either in one session (i.e., one login with no breaks greater than 30 minutes to avoid the automatic timeout) or in multiple sessions. The number of sessions a respondent uses for each recall will be displayed on the **Track Recall/Record** tab. This parameter can be changed after a study has begun.

Time Provided to Complete Recall: This field refers to the time frame (either 24 or 32 hours) in which the respondent can complete their recall. The options available are dependent on the selection made for *intake time frame*.

If the *intake time frame* is *midnight to midnight*, researchers choose between allowing respondents 24 or 32 hours to complete their recalls. If 24 hours, respondents must complete their report by midnight. If 32 hours, respondents have until 8:00 a.m. the day after the reporting date to complete the recall. These rules apply to both *scheduled* and *unscheduled* Studies.

If the *intake time frame* is *last 24 hours*, respondents must complete their recalls by midnight on the day the recall is started.

This parameter can be updated after a study has begun.

ASA24 uses the local date and time of the respondent's computer to verify that the respondent is completing an intake within the time period specified by the researcher. If respondents try to log in outside a study's start and end dates, reach their maximum number of recalls, or try to log in on a date not scheduled, this will result in the following message: "Our records show that you have already completed all your recalls. If you need clarification, check back with the person who asked you to complete ASA24. Thanks for your participation."

Consecutive recalls are possible under specific conditions determined during study setup. See Key Terms for details on allowing consecutive recalls.

For studies using ASA24 as a food record, the following parameters apply:

Number of Records (per respondent): This field defines the maximum number of records allowed for each respondent. ASA24 does not impose any limit on this. This parameter can be changed after a study has begun.

Study Type: Records can be comprised of multiple *consecutive* days or a *single* day.

Select *consecutive* if respondents are to report for two or more consecutive days in a record. A *consecutive* record begins on the first day a respondent logs in.

Select *single*-day if respondents are to report only one day in a record. By choosing this option and specifying a value for **Number of Records** greater than 1, respondents can complete multiple nonconsecutive, *single*-day records.

For either study type, respondents can login to edit the record one day after the record's last day.

Please note that study type cannot be changed once respondent accounts have been created.

Number of Consecutive Days For *consecutive*-day records, specify the maximum number of intake days in one record. If collecting multiple *consecutive*-day records, this number will apply to all records. For example, to collect a three-day record enter "3" as the maximum number of *consecutive* days. Any subsequent records will also allow up to three days of food record intake to be recorded.

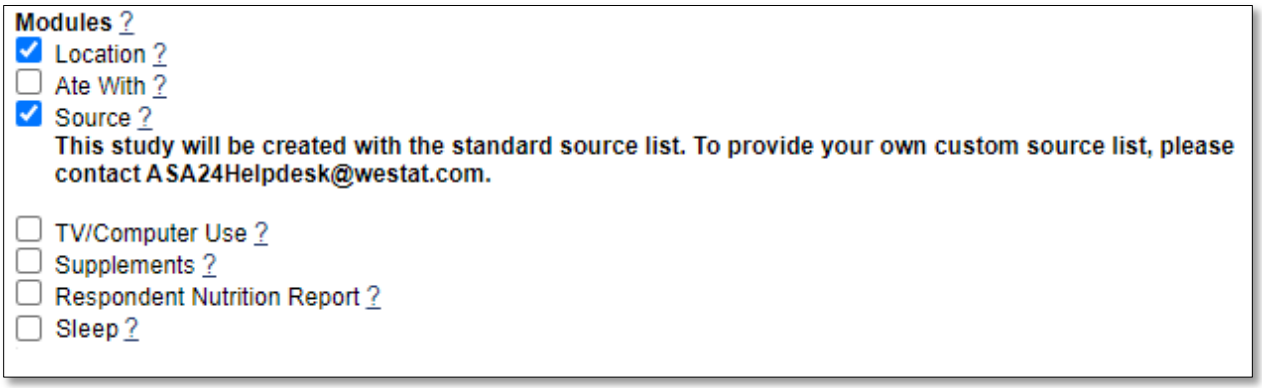
Study Start and **End Dates:** These dates define the reporting period. The Study Start Date is the first date that respondents may log in to the respondent website to complete a recall or

record. The Study End Date is the last date that respondents may log in to complete a recall or record. Respondents will be unable to log in outside the reporting period.

Researcher affiliation(s) and **Purpose of the study** are collected for internal informational use only and do not affect study administration.

Modules: There are seven modules that can be integrated in the ASA24 instrument. Select the checkbox to turn on/off the feature (Figure 5-2). Select the question mark "?" next to each module description on the form for additional information. Module selections can be updated after a study has begun.

Figure 5-2. Modules.



- When the *Location* module is checked, respondents are prompted to select where they ate their meal from a standard list. This module is checked by default as it may provide context to aid respondents in recalling what they ate at a meal. This module can be turned off. See Appendix D for the list of location values.
- When the A*te With* module is checked, respondents are prompted to report who they ate their meal with. See Appendix D for allowable responses.
- When the *Source* module is checked, respondents are asked to select where each food and beverage was obtained from a standard list. When turned on, the location module must also be selected. Because source is asked for all items, the amount of time to complete a recall or record day will increase. See Appendix D for the list of source values.
- When the *TV/Computer Use* module is checked, respondents are prompted to report whether they used electronics at their meal. See Appendix D for allowable responses.
- When the *Supplements* module is checked, respondents are specifically reminded to include both foods and supplements when reporting intakes. For example, when this module is off, one instruction reads, "Search for foods and beverages," and when on, it

reads, “Search for foods, beverages, and supplements.” Regardless of whether this is turned on or off, respondents can report supplements.

- The *Respondent Nutrition Report* (RNR) describes how a respondent’s intake for a day compares to dietary guidance. When the RNR is checked for recall studies, respondents can generate the RNR after completing their intake report. If generated, the researcher can access a copy of the report via the **Track Recall/Record** tab. When it is checked for record studies, the RNR is available only to the researcher via the **Track Recall/Record** tab; the researcher can then share the RNR with respondents.
- When the *Sleep* module is checked, respondents are prompted after they complete their diet assessment to answer questions about sleep timing, quantity, and quality. The module allows researchers to examine the associations between sleep and dietary intake, timing of eating, and other variables in the context of the 24-hour day.
- See Appendix D for more information on modules.

6. Provide Study Staff Access to ASA24

The ASA24 considers the person who sets up a study the primary ASA24 researcher. This researcher can grant others access to their study.

It is strongly recommended that principal investigators be granted access even if research assistants or other personnel are managing the ASA24 aspect of a study. This allows for continuity of data receipt and management in the event that study staff leave the project. Only those individuals with emails entered in the study staff section will receive important communications about version changes and retiring of old data.

Staff members who are added to the study can log in to the researcher website with most of the same rights as the primary researcher to complete study setup tasks, monitor study progress, and request and download analytic output files. Only the primary researcher can delete a study (and corresponding data); other study staff can perform all other actions within the researcher website.

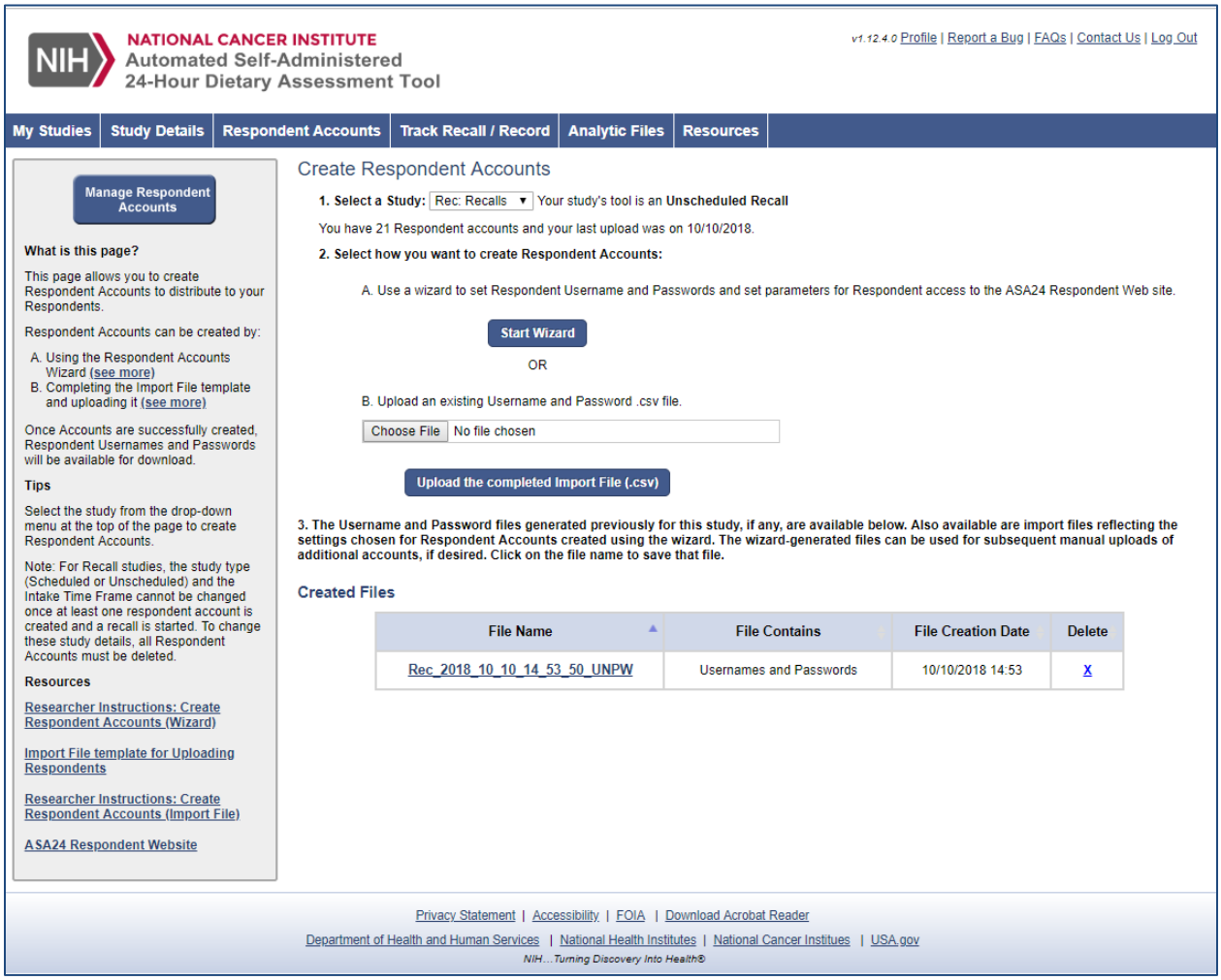
To add new study staff, navigate to the **Study Details** tab and select the **Manage Study Staff** button. From here, you can create accounts for new staff and manage access for staff members who already have ASA24 accounts. Select the relevant study from the drop-down menu at the top of the tab. Next, select **Add Study Staff** and provide basic contact information for the staff member. Once added, an email is sent to the staff member to provide information about logging in to the site.

7. Create Respondent Accounts

Each respondent must have a username and password assigned in order to log in to the respondent website to complete their intake(s).

Navigate to the **Respondent Accounts** tab to create respondent accounts (Figure 7-1). Respondent accounts can be created in two ways: (1) a manual file upload or (2) a step-by-step "wizard," available for recall studies only.

Figure 7-1. Respondent accounts.



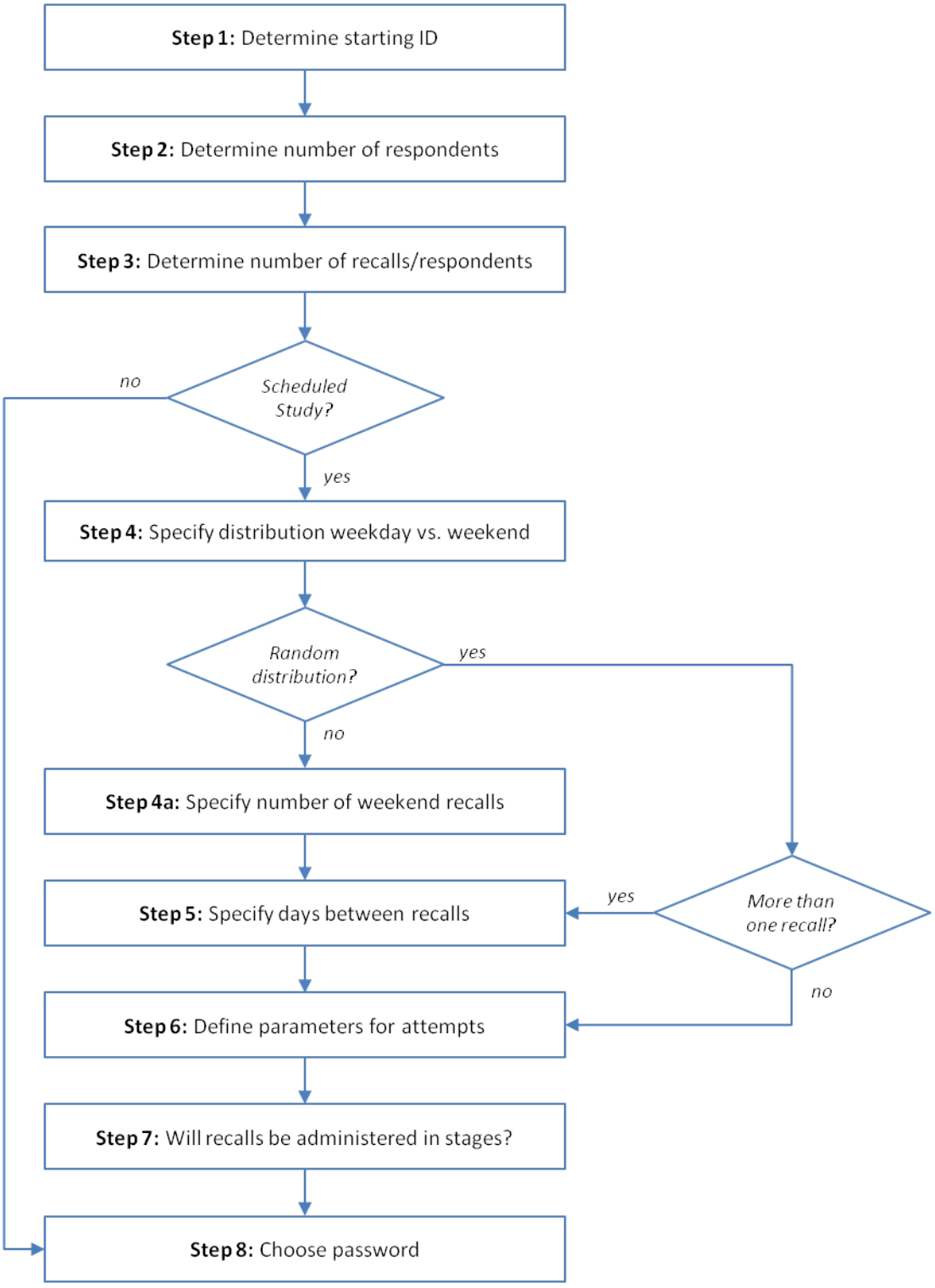
Respondent Accounts Wizard (for Recall studies only)

The Wizard walks you through a series of steps before generating accounts (Figure 7-2). It may be helpful to consider the parameters described below before launching the Wizard. The Wizard is only available for studies using ASA24 as a recall.

Once you are ready to start the Wizard, go to the **Respondent Accounts** tab. On the first screen, check that the correct study is selected in the dropdown box at the top of the screen. Then select the **Start Wizard** button and follow the prompts in each step.

Figure 7-2. Outline of the steps in the respondent account wizard.

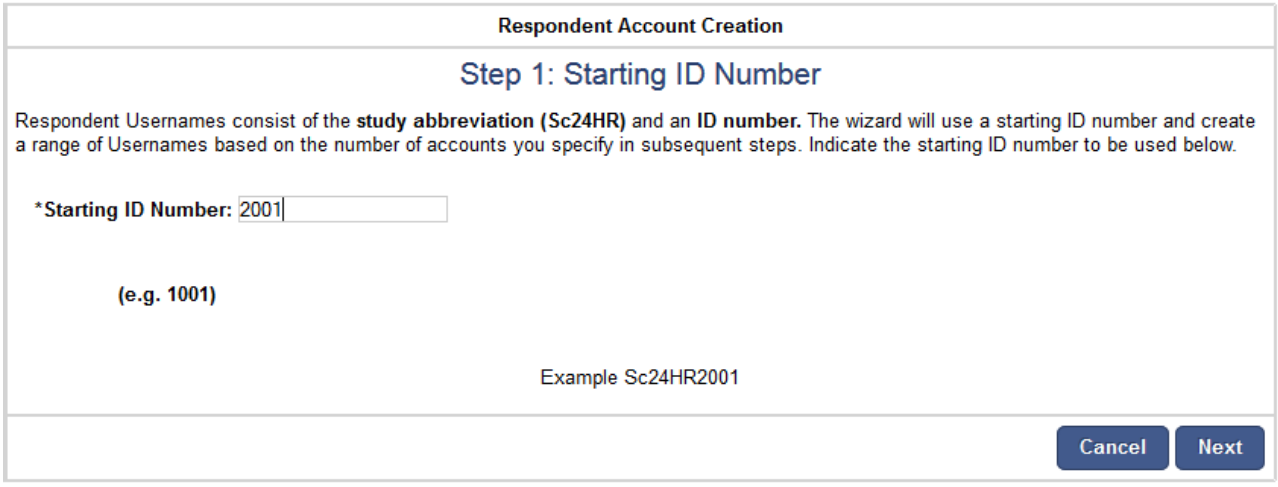
Description of each step follows.



Step 1: Determine a starting ID number. This number will represent the first respondent account number in the series. If your study abbreviation is FRUIT, and you select a starting respondent number of 100, the first respondent username will be FRUIT100. Subsequent usernames will be FRUIT101, FRUIT102, etc.

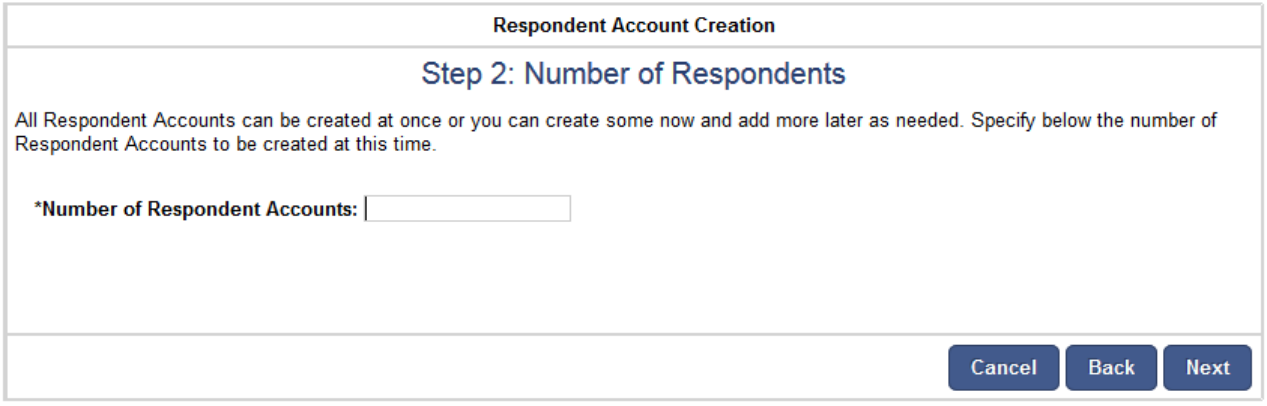
If you wish to use a distinct range of usernames for testing purposes only (e.g., respondent accounts are FRUIT100 through FRUIT400; and testing accounts are FRUIT900 through FRUIT950), you will need to complete the Wizard twice, entering different starting ID numbers for test usernames as well as active respondent usernames. Refer to How can a researcher test or pilot the ASA24 system? in the Key Considerations for researchers for more information.

Figure 7-3. Step 1: Determining a starting ID number for recall studies.



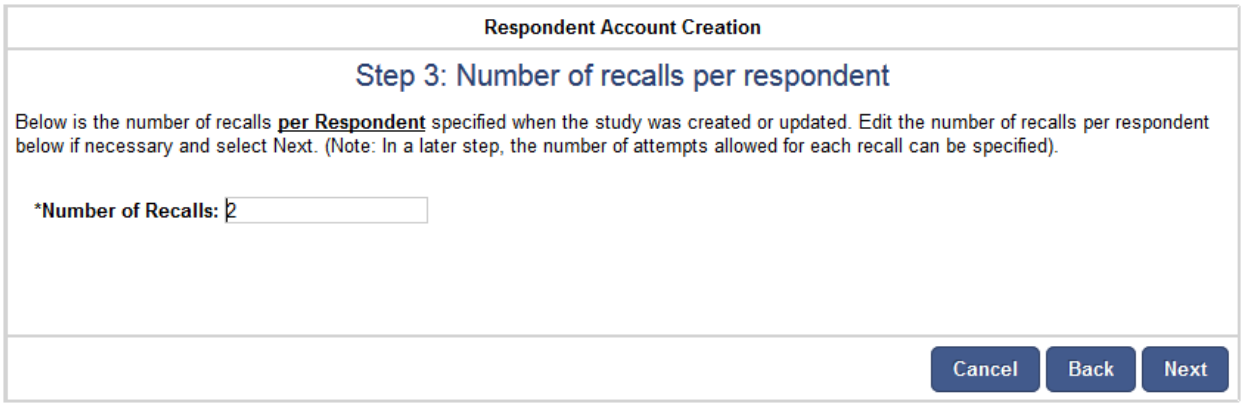
Step 2: Determine the number of respondents who will participate in the study (Figure 7-4). The Wizard can be used again to create accounts for additional respondents later if necessary.

Figure 7-4. Step 2: Determining number of respondents for recall studies.



Step 3: Determine the number of recalls allowed per respondent (Figure 7-5). If the number of recalls is 5, once a respondent has started 5 recalls (regardless of whether the recalls were completed), they will not be able to start or complete any more. Researchers can increase this number in the **Study Details** tab later if needed.

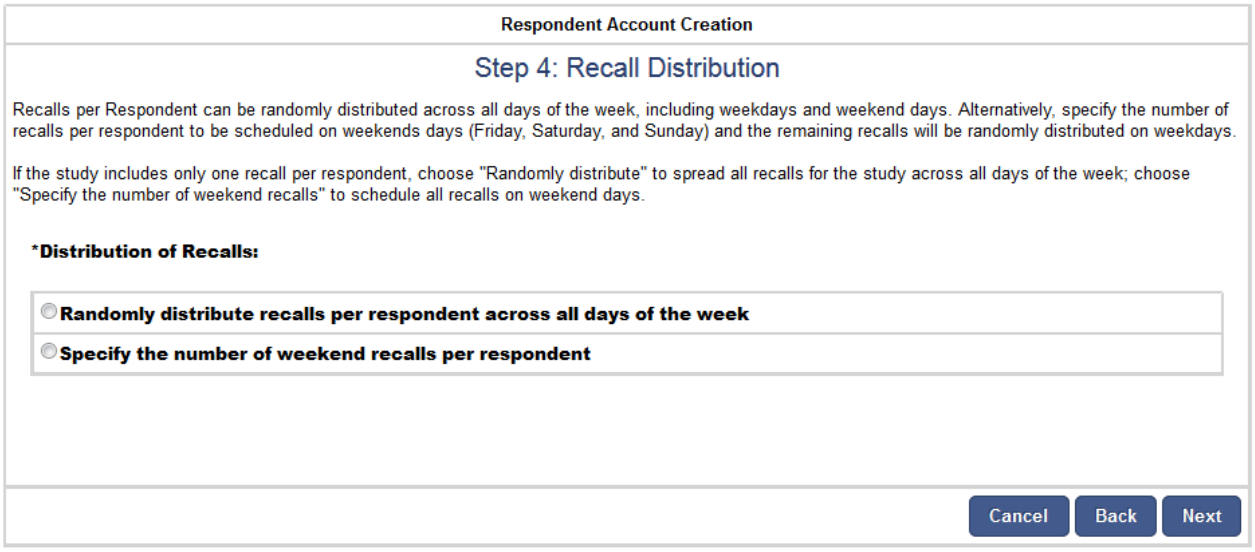
Figure 7-5. Step 3: Determining number of recalls per respondent.



Note: Steps 4 to 7 apply only to Scheduled studies. For Unscheduled studies, skip to Step 8.

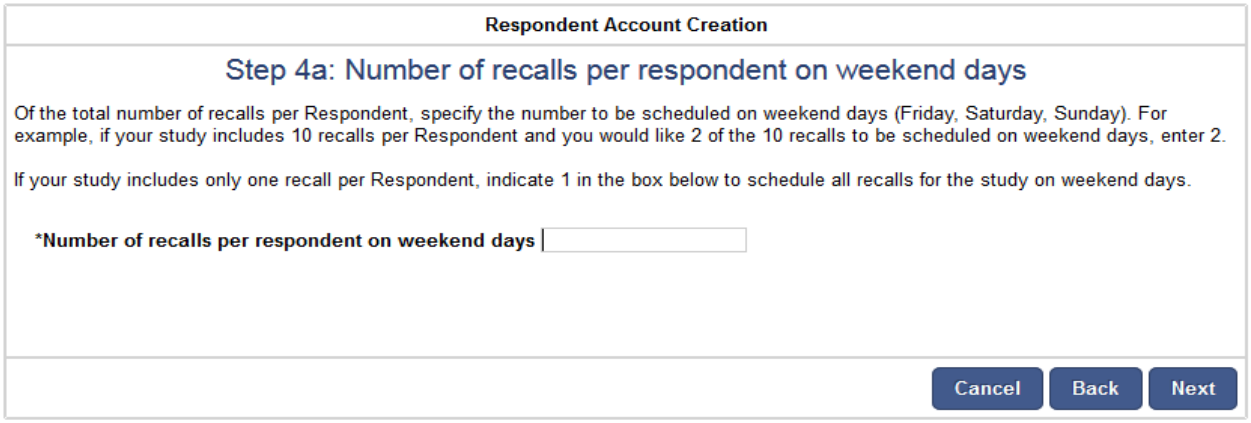
Step 4: Determine the number of recalls to be collected for weekday intake days (Monday through Thursday) versus weekend intake days (Friday, Saturday, Sunday) for each respondent (Figure 7-6). Recalls may be randomly distributed throughout the week or the number to be completed for weekend intake days (Friday, Saturday, and Sunday) may be specified (in this case, the remaining recalls will be scheduled for weekday intake days).

Figure 7-6. Step 4: Defining scheduled recall distribution.



Step 4a: The number of weekend recalls may be zero for studies in which respondents will complete all recalls for weekday intake days; similarly, the number of recalls for weekend intake days may be the total number of recalls per respondent, which would allow for recalls only for weekend intake days and no weekday intake days (Figure 7-7).

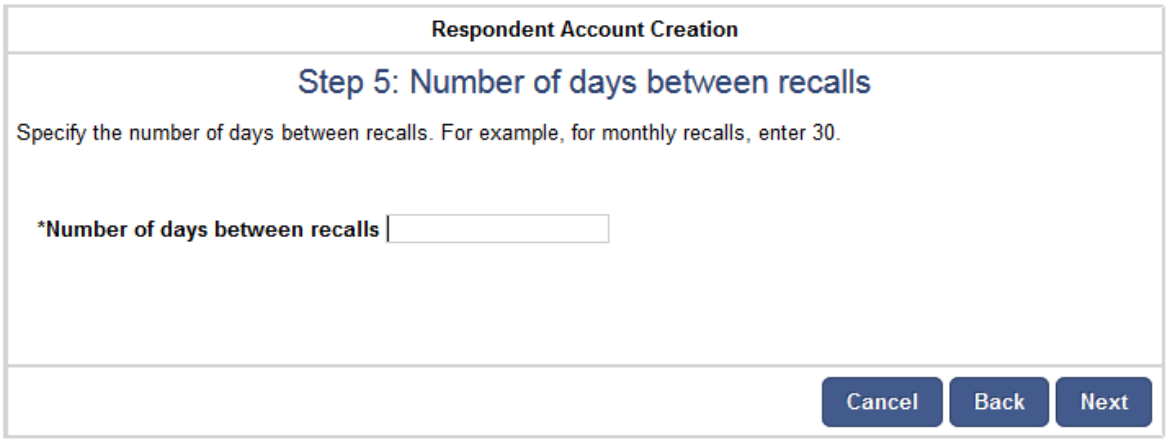
Figure 7-7. Step 4a: Defining the number of scheduled recalls per respondent on weekend days.



Step 5: Determine the number of days between recalls (Figure 7-8). For *Midnight to Midnight* recalls where consecutive days are desired, respondents must finish reporting in 24 hours, the number of days between recalls must be zero, and the number of attempts must be one. For *Midnight to Midnight* recalls where respondents must finish reporting in 32 hours, consecutive recalls are not possible and the number of days between recalls must therefore be larger than zero.

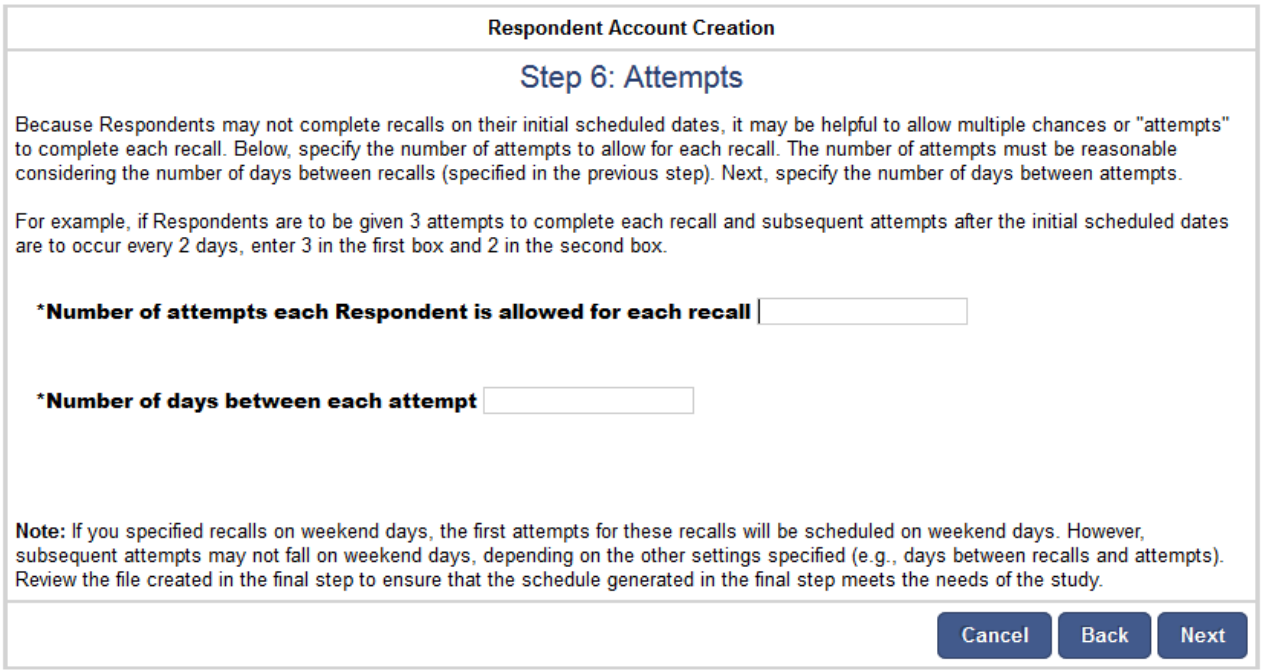
To space recalls evenly, specify the necessary interval between recalls. For example, if you would like each respondent to complete 3 recalls over a 3-month study timeframe and also want recalls to be spaced evenly throughout the study period, enter 30 days between recalls.

Figure 7-8. Step 5: Defining the number of days between scheduled recalls.



Step 6: Determine the number of attempts each respondent is allowed for each recall and the number of days between each attempt (Figure 7-9). Specify one attempt to limit respondents to a single date to complete each recall or the desired number of multiple attempts. To schedule attempts for consecutive days, specify one day between attempts.

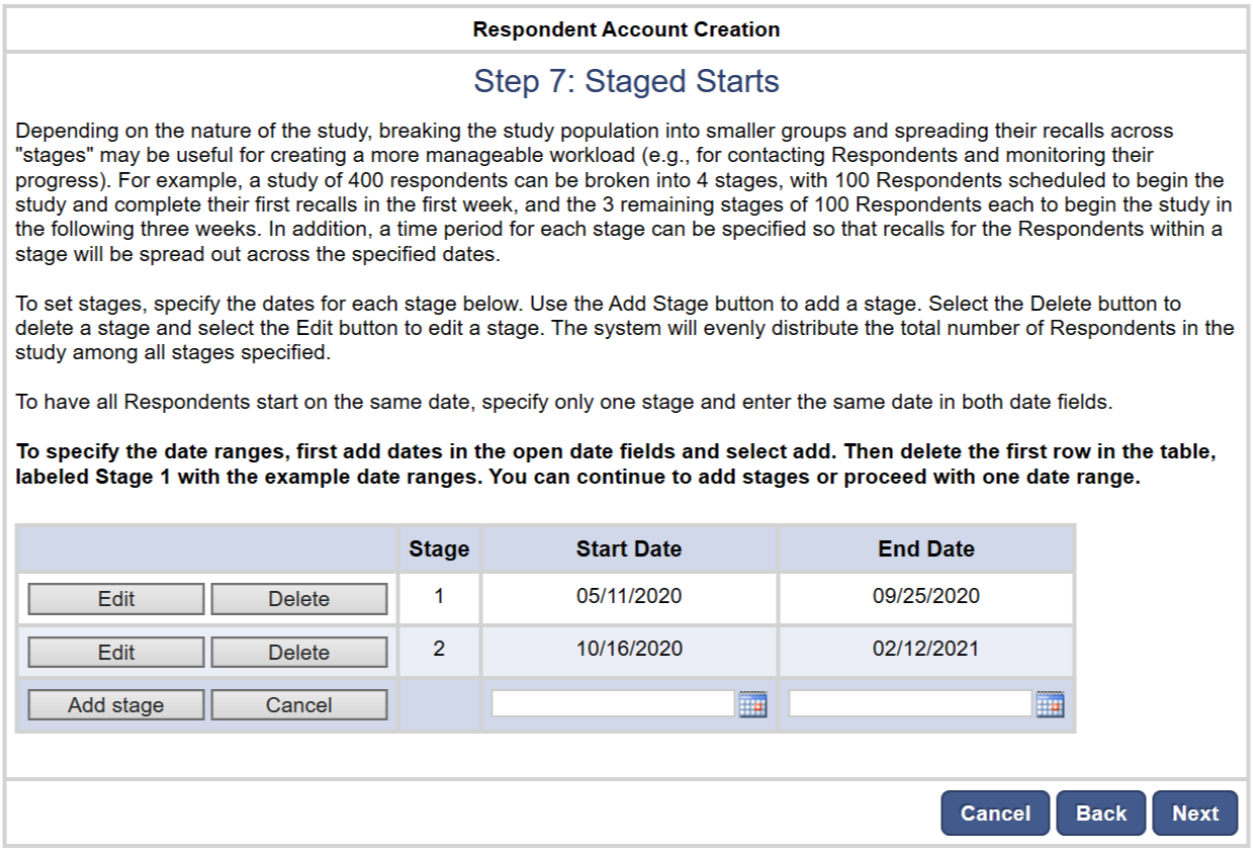
Figure 7-9. Step 6: Defining number of attempts and days between attempts in a scheduled study.



Step 7: Determine whether recalls will be administered in stages. (Figure 7-10). In a large study having all respondents start their recalls at the same time may be difficult for study staff to

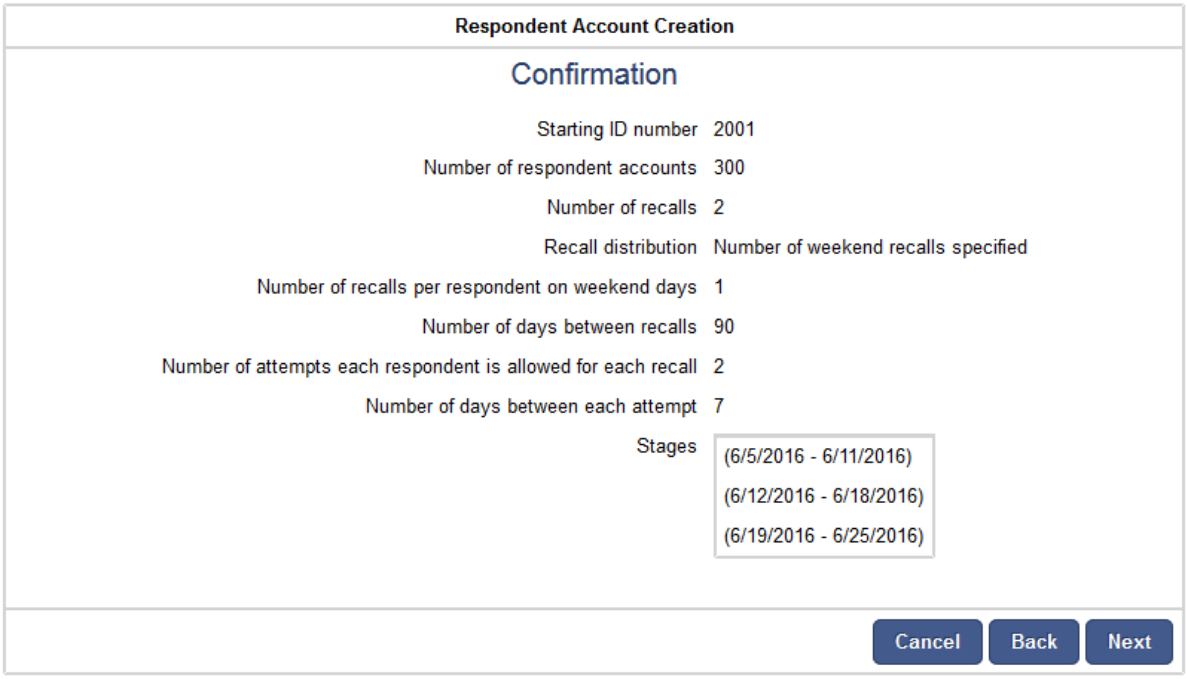
manage and support respondents. Therefore, it may be advantageous to researchers to stage recalls over a period of weeks or months so that a manageable number of respondents is completing recalls at a given time. Any number of stages can be created, as long as each stage falls within the study period. To specify the date ranges for stages, first add dates in the open date fields and select add. Then delete the first row in the table, labeled Stage 1 with the example date ranges. Finally, continue to add stages or proceed with one date range.

Figure 7-10. Step 7: How to create staged starts in a scheduled study.



Once you have completed the steps outlined above, a summary of your selections will be presented on a single screen (Figure 7-11). It is important to review this screen carefully; use the **Back** button provided on the screen (rather than the browser's **Back** button) to make changes if necessary.

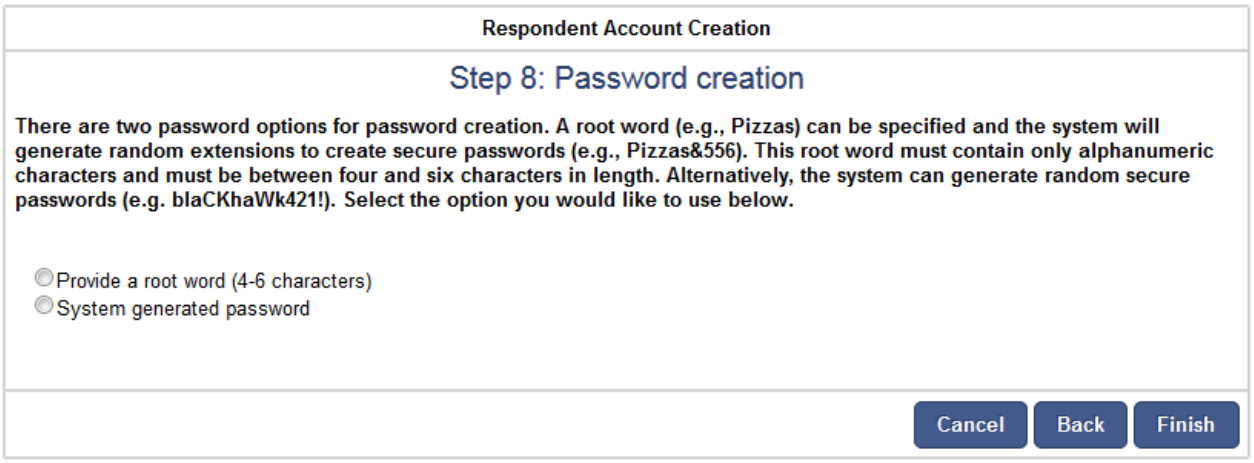
Figure 7-11. Confirmation of respondent account creation.



Step 8: Choose between randomly generated passwords (e.g. blaCKhaWk421!) for all respondents or passwords based on a relevant root word (e.g. Pizzas10) (Figure 7-12). Researchers who choose to specify respondent passwords when setting up accounts should choose strong, but meaningful and relatively easy-to-remember passwords. Strong passwords can be difficult for respondents to remember and to type accurately. Respondents may also misplace or lose usernames and passwords provided to them. It can be helpful for researchers to encourage respondents to copy and paste usernames and passwords from an e-mail with instructions for completing recalls or records.

Once the Wizard has been completed, two files are available for download: 1) a Username and Password File and, 2) an Import File. The Import File contains the SubjectID, Reporting Dates, Attempt Dates, Intake Dates and Passwords. If desired, this file can be downloaded, updated, and then uploaded to make modifications to the schedule of dates (see Import File below).

Figure 7-12. Options for step 8: password creation.



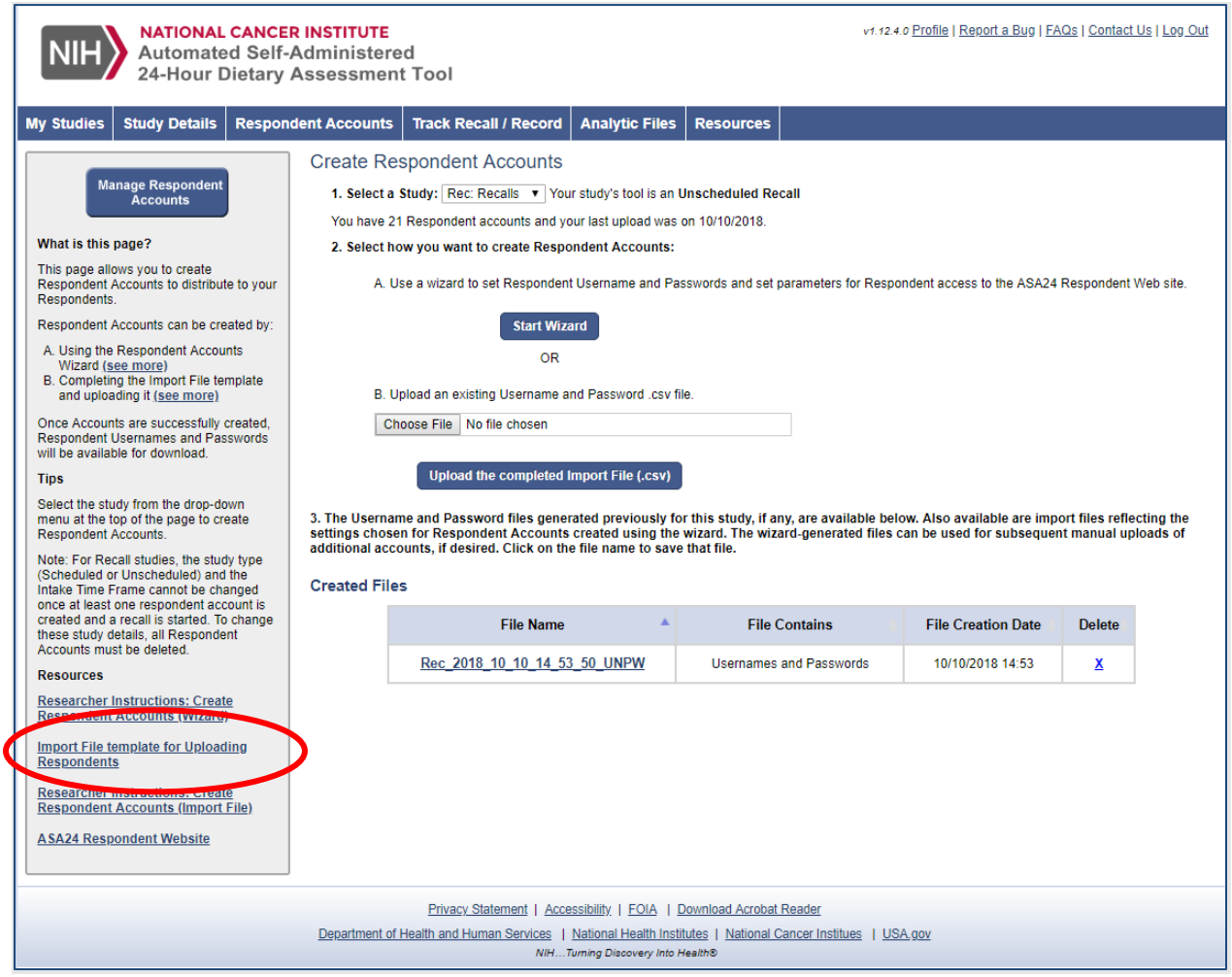
For Scheduled studies: Researchers should carefully review the schedule provided in the Import File to ensure that it is consistent with expectations. The Wizard is designed to create a recall schedule that matches all elements selected by the researcher during completion of the Wizard, while correcting for entries that present logic conflicts (e.g., requesting more weekend recalls than total number of recalls). However, there are several parameters used to calculate the recall schedule (number of recalls per respondent, number of attempts per recall, number of weekend Intake Dates, and spacing of recalls throughout the study period), and it is therefore important to confirm that each selection corresponds with the schedule anticipated by the researcher.

To make changes, the researcher can run the Wizard again with different selections. Alternatively, this file can be downloaded, updated and then uploaded to make modifications to the schedule of dates (see Import File below).

Import File

The Import File must be used to create respondents accounts for food record studies. It can also be used to define accounts for recalls instead of using the Wizard. There are six steps to using the Import File template to create accounts.

Figure 7-13. Import file.



Step 1: Download the Import File template from the **Respondent Accounts** tab (Figure 7-13). The Import File template is an Excel workbook with multiple worksheets and is described in more detail in the next section.

Step 2: Populate the Import File template with your study details

Step 3: From Excel, save the populated Import File as a CSV file.

Step 4: From the **Respondent Accounts** tab, select the study for which you want to create accounts.

Step 5: Upload the CSV file. Once the file is validated, ASA24 will generate a file containing usernames and passwords. If there are errors, accounts will not be created. Detailed information on uploading is described in the next section.

Step 6: Download the username and password file. Researchers are responsible for assigning and securely distributing account information to their respondents. After the initial import file

has been uploaded and validated, researchers can upload additional files to add new respondents or to update new intake dates for existing respondents in a *scheduled* study. Researchers can change the number of respondents or the number of recalls or records per respondent by editing the study settings using the **Study Details** tab. Such changes should be done prior to attempting to upload new CSV files.

Detailed information for completing the Import File

The Import File must be structured as described in this section.

A template of the Import File is available for download from the researcher website. The template is an Excel file to enable the inclusion of instructions. Because the template is an Excel file, it is referred to as a workbook. The workbook includes five worksheets as indicated by the tabs along the bottom. The first worksheet, *ImportFile_Template*, is the template where researchers enter respondent data. The next three worksheets include sample data for a scheduled recall study, an unscheduled recall study, and a food record (both *consecutive*- and *single*-day) study. The fifth worksheet provides troubleshooting tips.

You may populate the template worksheet with your data using Excel, but the *ImportFile_Template* worksheet must be saved as a CSV file before it can be uploaded to the researcher website. ***Note that when saving an Excel workbook as a CSV file, only the data in the active sheet are retained.*** Make sure the worksheet *ImportFile_Template* is the active sheet before saving. The additional worksheets (i.e., sample data and troubleshooting tips) will not be retained in the CSV file, so you may wish to save a copy of the Excel workbook for future use and reference.

- Before populating and uploading the Import File, ensure that you have selected the correct study type (i.e. *scheduled* or *unscheduled* for recalls, *consecutive*- or *single-day* for records) within the **Study Details** tab. The study type determines which fields in the Import File need to be populated.

  - For *scheduled* recall studies, the Import File must include complete information for StudySubjectID, Recall Number, Attempt, and Intake Date. Providing a password is optional. Each row represents one recall attempt for one respondent.
  - For *unscheduled* recall studies, only StudySubjectID is required. Providing a password is optional. Leave the Recall Number, Attempt, and Intake Date columns blank. Complete only one row per respondent, regardless of the number of recalls each respondent is to complete.
  - For *consecutive*- or *single-day* food record studies, only StudySubjectID is required. Leave the Recall Number, Attempt, and Intake Date columns blank. Providing a password is optional. Complete only one row per respondent, regardless of the number of records each respondent is to complete.

ASA24 will reject the file when uploaded if it contains unexpected data for the study type.

Once accounts have been created, the study type (*scheduled* or *unscheduled* for recalls; *consecutive*- or *single-day* for records) cannot be changed.

The Import File columns are described below:

- **StudySubjectID:** *Applies to all study types and is required.* It must be a number. ASA24 uses StudySubjectIDs to generate unique usernames for respondents. Usernames are comprised of the Study Abbreviation (provided at study creation) and the StudySubjectID. Usernames are used in all ASA24 reports and files. When the numeric StudySubjectID is combined with the abbreviation, it becomes an alphanumeric value. Therefore, when sorted, StudySubjectID values of 1, 2 ,3, 10, 12, 100 for the study FRUIT, for example, result in usernames FRUIT1, FRUIT10, FRUIT12, FRUIT100, FRUIT2, and FRUIT3. Researchers may wish to use leading zeroes in StudySubjectIDs to enable ordinal sorting. For example, StudySubjectID values of 001, 002, 003, 010, 012, 100 result in usernames FRUIT001, FRUIT002, FRUIT003, FRUIT010, FRUIT012, and FRUIT100.
- **Recall and Attempt Numbers:** *Fill in for scheduled recall studies only.* The Import File must include one row for each RecallNumber/Attempt combination for every study respondent. For example:
    - For a study with four recalls per respondent and one attempt per recall, there will be four rows for each recall to be completed by a StudySubjectID. (Table 7-1).
    - For a study with two recalls per respondent and three attempts per recall, there will be six rows per StudySubjectID with three rows per Recall Number, and in the Attempts column each row will be numbered consecutively from 1 to 3 (Table 7-2).

Table 7-1. Recalls and attempts, single attempt/recall.

StudySubjectID	RecallNumber	Attempt	IntakeDate	Password
1001	1	1		
1001	2	1		
1001	3	1		
1001	4	1		
1002	1	1		
1002	2	1		
1002	3	1		
1002	4	1		

Table 7-2. Recalls and attempts, multiple attempts/recall.

StudySubjectID	RecallNumber	Attempt	IntakeDate	Password
1001	1	1		
1001	1	2		
1001	1	3		
1001	2	1		
1001	2	2		
1001	2	3		
1002	1	1		
1002	1	2		
1002	1	3		
1002	2	1		
1002	2	2		
1002	2	3		

- **Reporting and Intake Date:** *Fill in for scheduled recall studies only.* The researcher specifies the date(s) on which respondents should report. The reporting date (the date on which the respondent will access the ASA24 system to complete the recall) will be calculated by ASA24. The earliest allowable intake date is the day prior to uploading of the Import File. In this case, the reporting date would be the current date.
- **Password:** The researcher may choose to supply a password for each StudySubjectID or leave the Password column blank. Researchers should choose passwords that are strong, but meaningful and relatively easy to remember. If passwords are not supplied, they will be generated by ASA24 during the upload process.

    - ASA24-generated passwords will have at least one upper case letter, one lower case letter, and one special character. If you plan to mail usernames and passwords to respondents using hard copies, you might want to specify passwords that are easier to decipher (e.g., Apples8#). If passwords are emailed to respondents, you may want to suggest that they copy and paste the password and username when logging in.

      For security purposes, respondent website accounts are locked after five login attempts with an invalid password. The researcher can unlock respondent accounts under the **Manage Respondent** tab by selecting the **Manage Respondent Accounts** button.

Import File columns are summarized in Table 7-3.

Table 7-3. Import file specifications.

StudySubjectID	▪ Required for all studies ▪ Unique identifier for each study respondent assigned by researcher ▪ Numbers only; up to 24 digits*
Recall Number	▪ Required for Scheduled recall studies only; blank for Unscheduled recall and food record studies ▪ Positive integer ▪ Must be less than or equal to the maximum number of recalls selected in Study Details
Attempt	▪ Required for Scheduled recall studies only; blank for Unscheduled recall and food record studies
Intake Date(s)	▪ Required for Scheduled recall studies only; blank for Unscheduled recall and food record studies ▪ Format: mm/dd/yyyy ▪ Must be within the study start date and end date provided by researcher *The earliest allowable Intake Date is the date prior to uploading of the Import File (i.e., yesterday) (see Intake Date and Reporting Date in Key Terms)*
Password	▪ For all study types, may be specified by the researcher or left blank to be generated by ASA24. ▪ 8-14 characters ▪ At least one special character (no single or double quotes, vertical bar, comma, or backslash) ▪ A combination of letters and numbers **and/or** a combination of upper-case and lowercase letters ▪ Examples of valid passwords: Storage!3, #TqBfJoTlD$, or 2hrd2Gs! ▪ Examples of invalid passwords: funnybunny! [must include an uppercase letter and/or a number to be valid] $3rT$ [too short] 2easyToForget [must include a special character]

* *Note that if you are working with Excel, a StudySubjectID that contains more than 15 digits may not show completely depending upon column width*. Excel may apply automatic formatting to the password column. The file is best viewed using a text editor, such as Windows Notepad or TextEdit (or SimpleText) for Mac.

Notes regarding the format of the **Import File**:

- Column headers cannot be changed (however, headers are not case sensitive).
- No extra headers or columns are permitted.
- Blank rows for file readability are permitted.

Sample populated spreadsheets appear in Table 7-4 and Table 7-5 (Scheduled recall studies) and Table 7-6 and Table 7-7 (Unscheduled recall and food record studies).

Table 7-4. Sample import file for scheduled recall study (passwords generated by the ASA24 system).

StudySubjectID	RecallNumber	Attempt	IntakeDate	Password
1001	1	1	6/1/2016	
1001	1	2	7/1/2016	
1001	2	1	9/1/2016	
1001	2	2	10/1/2016	
1002	1	1	6/1/2016	
1002	1	2	7/1/2016	
1002	2	1	9/1/2016	
1002	2	2	10/1/2016	

Table 7-5. Sample import file for scheduled recall study (passwords provided by researcher).

StudySubjectID	RecallNumber	Attempt	IntakeDate	Password
1001	1	1	6/1/2016	Banana2#
1001	1	2	7/1/2016	Banana2#
1001	2	1	9/1/2016	Banana2#
1001	2	2	10/1/2016	Banana2#
1002	1	1	6/1/2016	Mango$30
1002	1	2	7/1/2016	Mango$30
1002	2	1	9/1/2016	Mango$30
1002	2	2	10/1/2016	Mango$30

Table 7-6. Sample import file for unscheduled recall and food records studies (passwords generated by the ASA24 system).

StudySubjectID	RecallNumber	Attempt	IntakeDate	Password
1001				
1002				
1003				
1004				
1005				

Table 7-7. Sample import file for unscheduled recall and food records studies (passwords provided by researcher).

StudySubjectID	RecallNumber	Attempt	IntakeDate	Password
1001				Banana2#
1002				Mango$30
1003				Carrot6#
1004				Apple$50
1005				Turnip3$

Detailed information for uploading the Import File

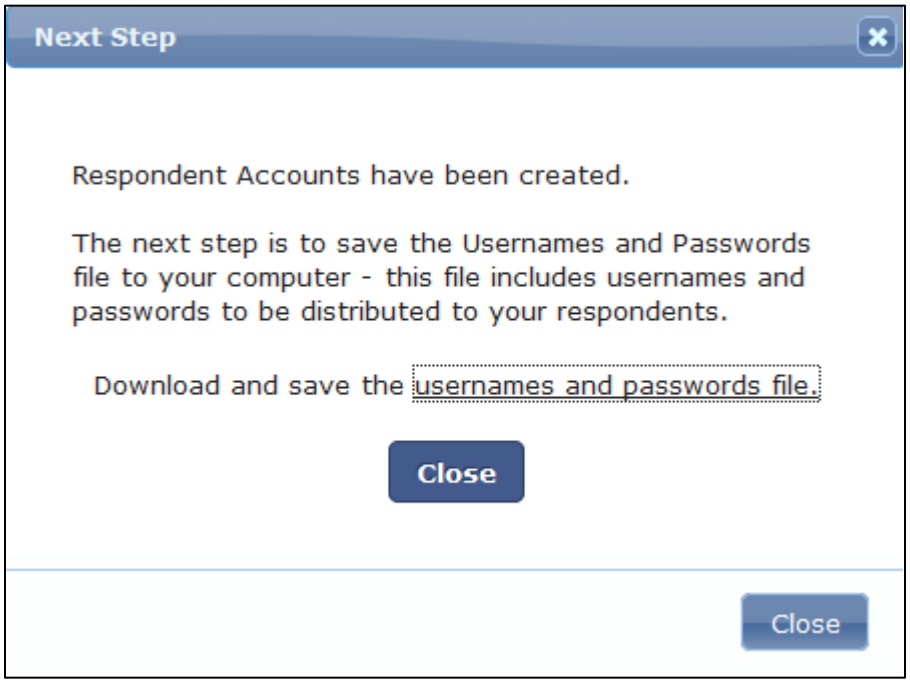
Once you have populated the Import File with the required information for the study type, save the worksheet ImportFile_Template as a CSV file. Use the Excel **Save as** command and select CSV as the file type. Only the active sheet will be converted to CSV so be sure that the ImportFile_Template is the active sheet. The additional worksheets including sample data and troubleshooting tips will not appear in the CSV file.

Upload the CSV file to the researcher website from the **Respondent Accounts** tab and select **Browse** to locate the CSV file on your computer. Once you locate the file, select the **Upload the completed Import File (.csv)** button.

If ASA24 detects problems with the uploaded file, information about the errors will be provided immediately. Errors should be fixed on the original worksheet and then uploaded again as a CSV file once corrected.

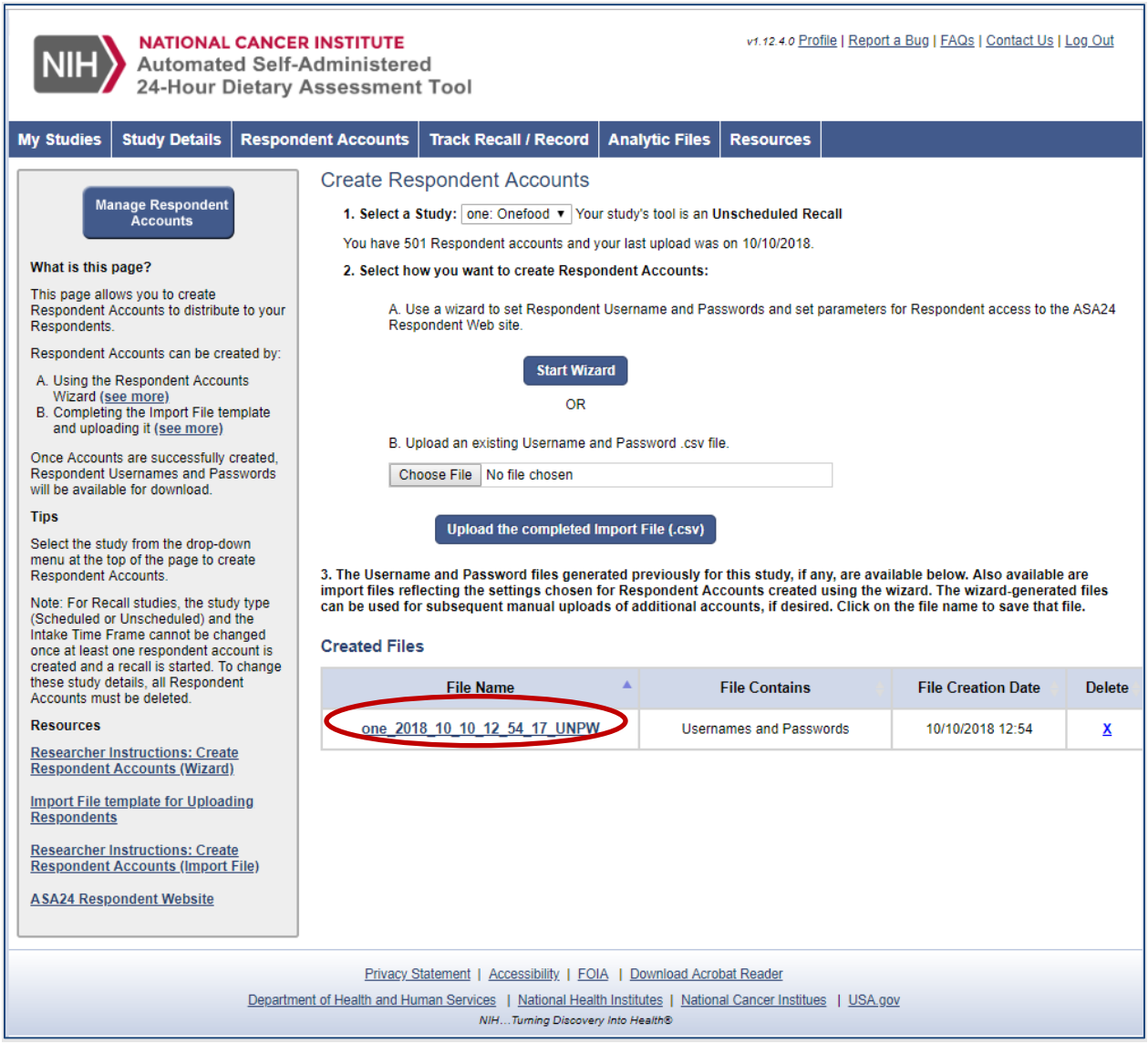
When the file has been uploaded successfully, a pop-up message alerts the researcher with a link to the Username and Password file (Figure 7-14).

Figure 7-14. Pop-up message following successful import file upload.



This file remains available to download in the future on the **Respondent Accounts** tab (Figure 7-15).

Figure 7-15. Username/Password files available on Create Respondent Account page.

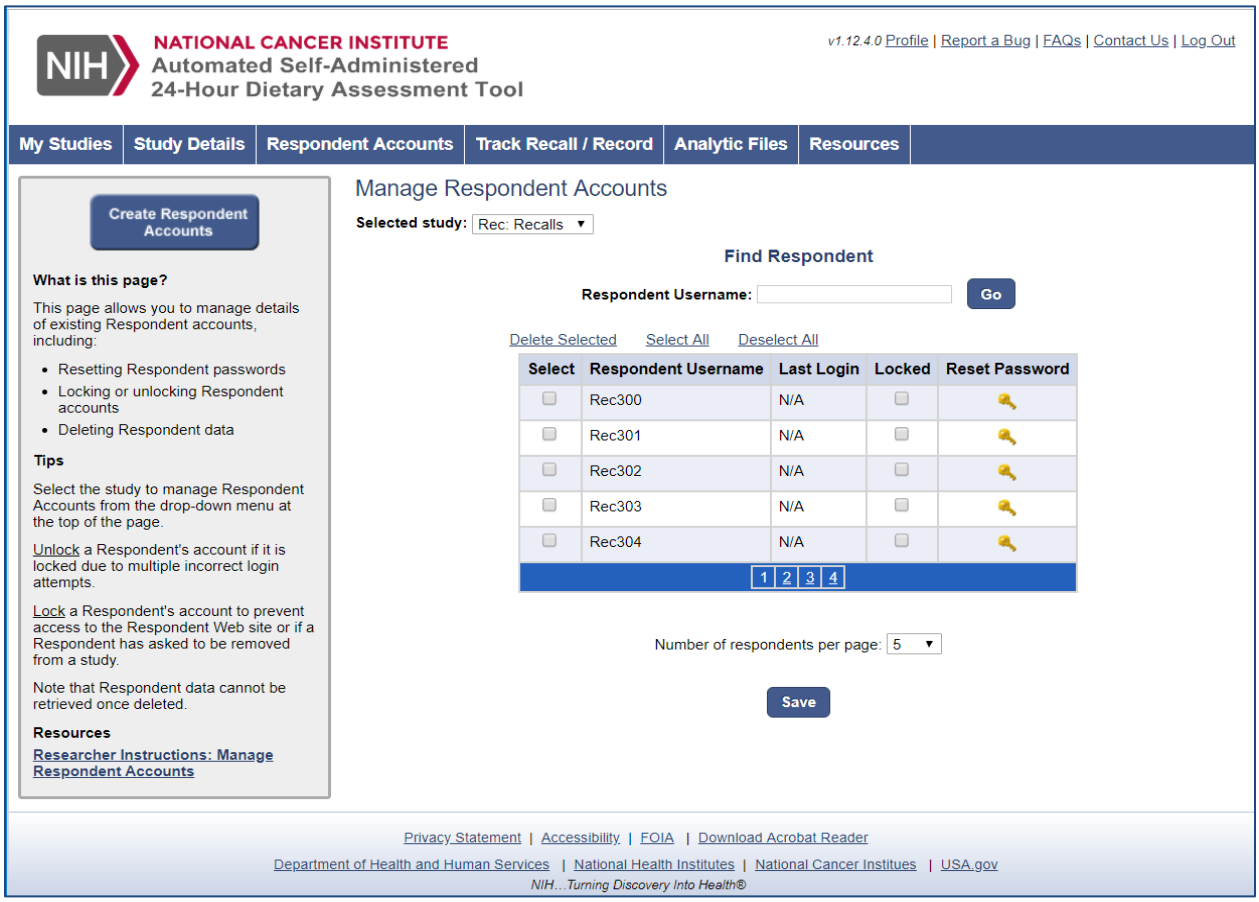


The first Username and Password file created for a study will contain information for a demonstration account in the last line. The demo username will be of the form, *study abbreviation*_DemoUser. For example, FRUIT_DemoUser. This account can be used for the researcher or study staff to complete one or more practice recalls or food records. Demo_User accounts do not appear in the study reports or analysis output files. While Excel provides a convenient way to view CSV files, passwords with special characters may not display correctly due to automatic formatting applied by Excel.

Managing Respondent Accounts

Once respondent accounts have been created, study staff can make necessary changes, including deleting accounts, changing passwords, or locking or unlocking accounts on the **Manage Respondent Accounts** page of the **Respondent Accounts** tab (Figure 17-16). The **Respondent Accounts** tab includes both the **Manage Respondent Accounts** and **Create Respondent Accounts** pages; to toggle between them, select the dark blue **Create Respondent Accounts** button at the top of the gray box on the left-side of the screen on the **Manage Respondent Accounts** page or the **Manage Respondent Accounts** button if you are on the **Create Respondent Accounts** page.

Figure 7-16. Managing respondent accounts.



- To find a respondent, enter the username in the box and select the **Go** button. The table will display the details for the username entered.

- To delete a respondent, select the check box in the **Select** column next to the respondent username and select the **Delete Selected** link above the table.

  Note that all data associated with the respondent username will be deleted from the study and cannot be retrieved.

- To lock a respondent's account, select the check box in the **Locked** column in the row with the respondent's name and select the **Save** button below the table. Locking the account prevents the respondent from accessing the ASA24 respondent website.
- To unlock a respondent's account, deselect the check box in the **Locked** column in the row with the respondent's name (this box should be checked if the account is already locked) and select the **Save** button below the table. A respondent's account may be locked manually to prevent access (see above) or automatically as a result of 5 failed login attempts.

- To select all respondents in the table, use the **Select All** link above the table.

8. Monitoring Study Progress

The **Track Recalls/Records** tab can be used by researchers to monitor completion of recalls or records for a selected study. On this tab, recalls or records may be filtered on a number of parameters selected by the researcher, including username, date completed and completion status. Researchers may switch the table view to a respondent-level (number of completed recalls or records for each respondent, etc.), recall/record-level summary (Recall/Record (Started); and Recall/Record (Not Started)), to obtain specific information for each recall or record by each respondent.

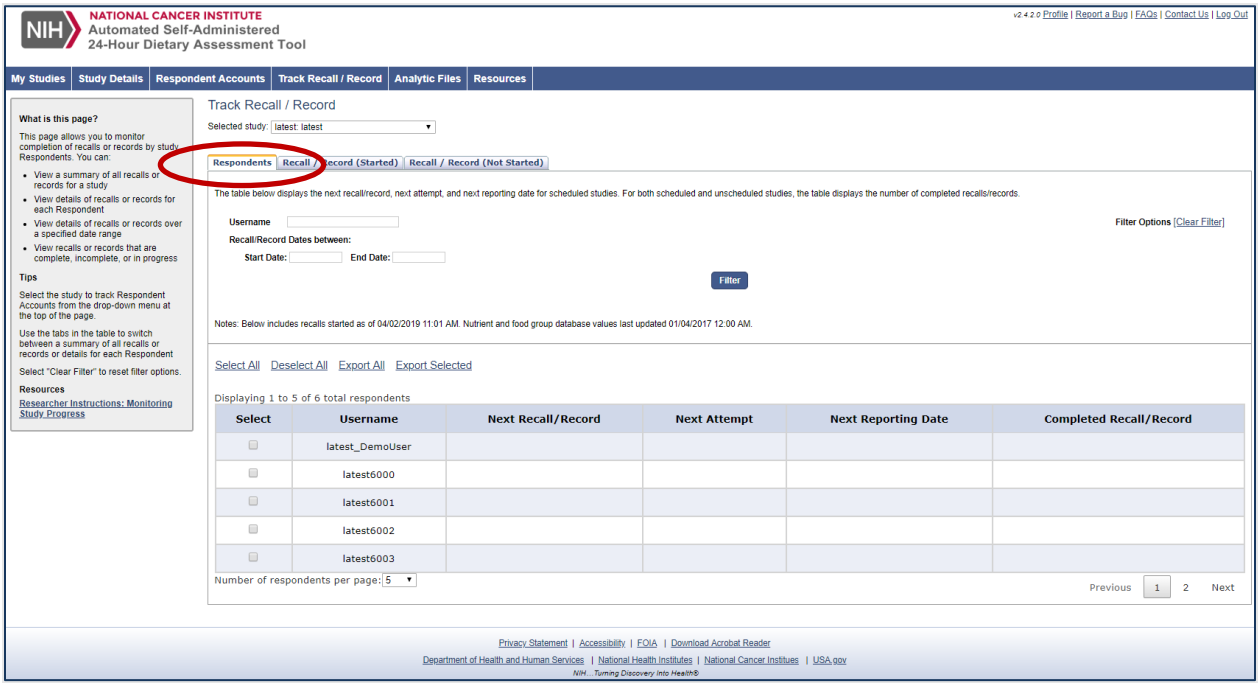
Respondents Tab

Using the **Respondents** tab (Figure 8-1), data can be viewed for all respondents, for a specific respondent, or for a subset of respondents, or for a subset of recalls/records by filtering on specific start and end dates. Respondent-level data contain summary information about respondents (i.e., one row per respondent). Viewing respondent-level data enables a researcher to identify the overall status of a respondent (e.g., date of next *scheduled* recall, number of recalls or records completed).

Column fields in the reports generated using the **Respondents** tab (Figure 8-1) are as follows (***note that some fields do not apply to unscheduled studies or to studies collecting records***):

- Username
- Next Recall (for scheduled recall studies only)
- Next Attempt (for scheduled recall studies only)
- Next Reporting Date (for scheduled recall studies only)
- Completed Recalls and Records

Figure 8-1. Tracking recalls or records, by respondent.



Recall/Record (Started) Tab

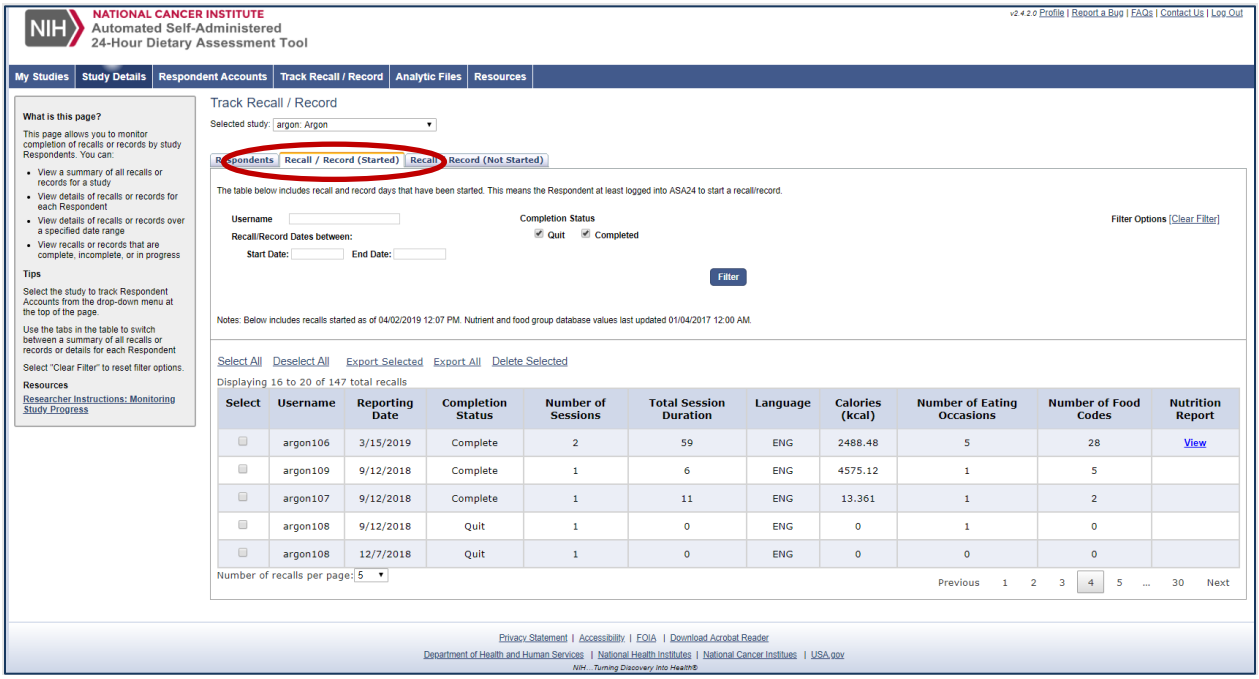
Using the **Recall/Record (Started)** tab (Figure 8-2), researchers can also filter by recalls/records completed during a specific date range, for a specific respondent, or by completion status.

Column fields in the reports generated using the **Recall/Record (Started)** tab include the following:

- Username
- Reporting Date
- Completion Status
- Number of Sessions (number of logins)
- Total Session Duration
- Language (in which the recall/record was completed)
- Calories (consumed during recall/record day)
- Number of Eating Occasions (i.e. meals, snacks, drinks)

- Number of Food Codes
- Nutrition Report (also known as the Respondent Nutrition Report)

Figure 8-2. Tracking recalls or Records, by Recall / Record (Started).



This screen is useful for obtaining past or future information about respondents' recalls/records that have been started. The tab provides information about whether the respondent completed reporting for the day or if the respondent started but did not complete reporting for that day.

Grids viewed using this tab will include as many rows per respondent as there are recalls or records and attempts (e.g., two recalls with four attempts would have eight rows). For *unscheduled* recalls and food records there can only be one attempt per recall/record, so this is equivalent to one row per recall/record.

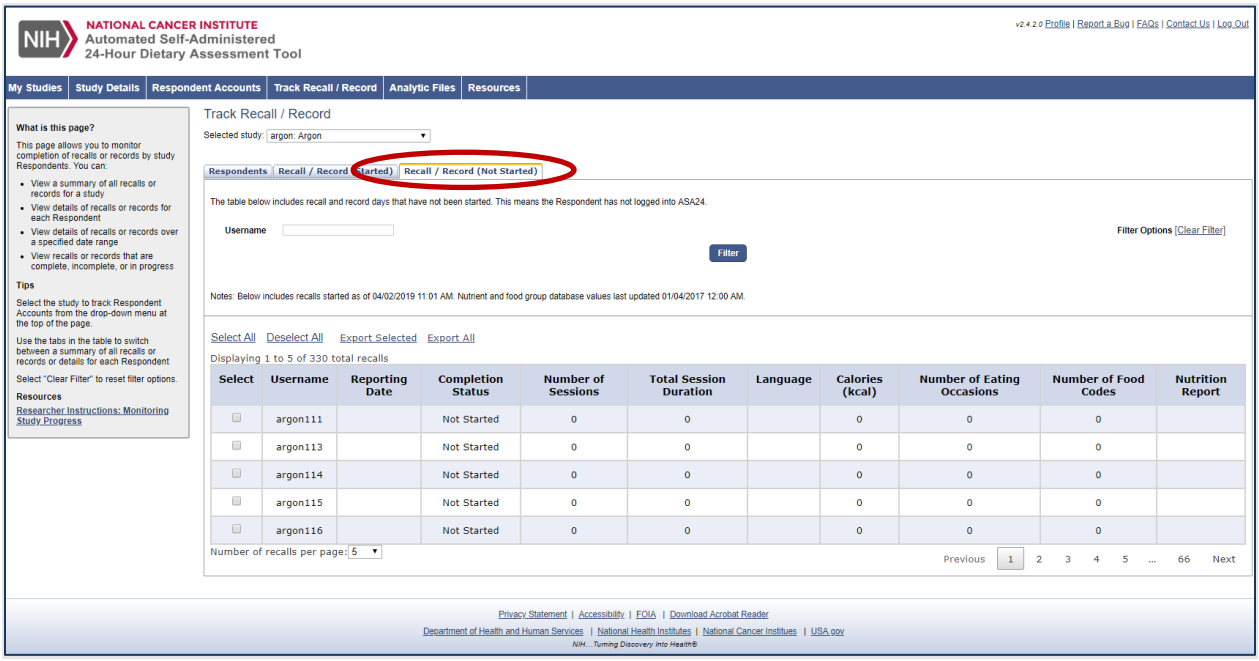
Recall/Record (Not Started) Tab

Using the **Recall/Record (Not Started)** tab **(Figure 8-3)**, researchers can view the list of usernames with recalls/records that have not been started. Column fields in the reports generated using the **Recall/Record (Not Started)** tab, are similar to those in the **Recall/Record (Started)**:

- Username
- Reporting Date
- Completion Status
- Number of Sessions (number of logins)

- Total Session Duration
- Language (in which the recall/record was completed)
- Calories (consumed during recall/record day)
- Number of Eating Occasions (i.e. meals, snacks, drinks)
- Number of Food Codes
- Nutrition Report (also known as the Respondent Nutrition Report)

Figure 8-3. Tracking recalls or records, by Recall/Record (Not Started).



Filtering Grids

To filter for recalls/records completed by a specific respondent, enter the respondent's username in the corresponding field on the page. Then select any other relevant search criteria – i.e., date range, and completion status – and use the **Filter** button at the bottom of the tab to display the selections. To clear and start a new search or view information for all respondents, use the **Filter Options (Clear Filter)** link to the right of the **Filter** button.

Viewing the Respondent Nutrition Report (RNR)

If researchers have selected the RNR option during study setup for recall or record studies, a report is generated by the system to provide feedback regarding food group and nutrient intakes in relation to country-specific dietary guidance. For both recalls and records, RNRs will only be provided if respondents answered the questions on age and sex, and if female, whether

pregnant or not, at the beginning of the recall. Sample reports and more information on the RNR are available online at https://epi.grants.cancer.gov/asa24/respondent/nutrition-report.html.

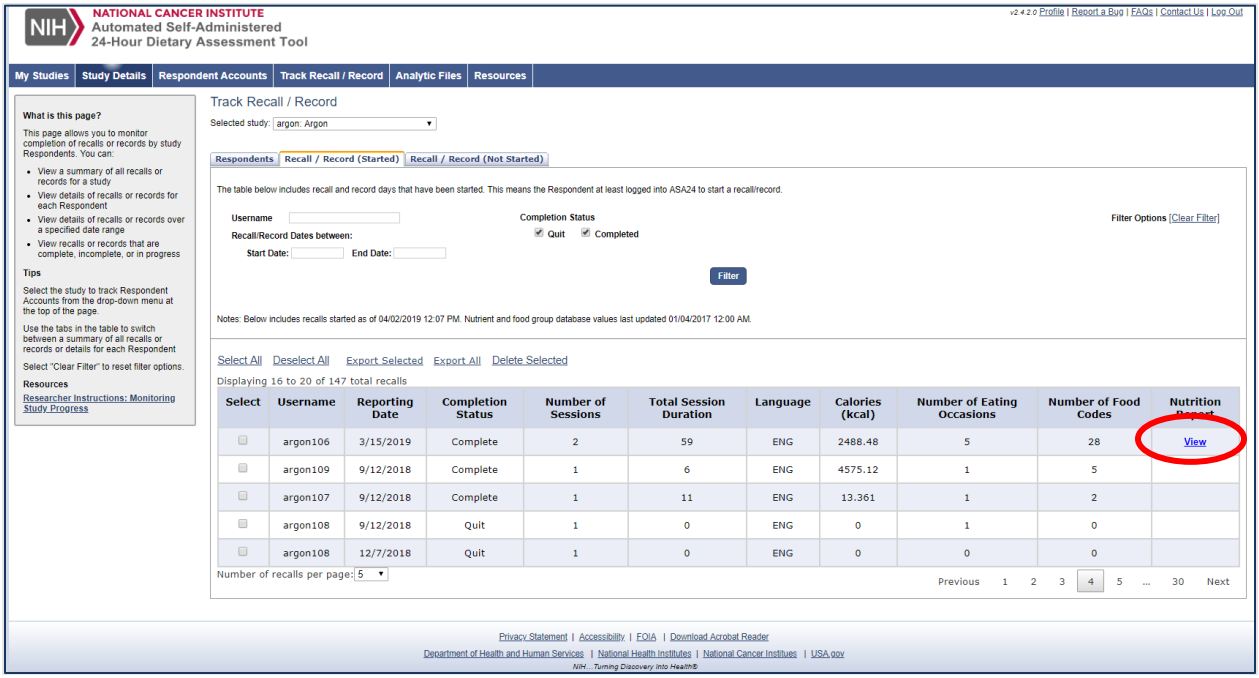
For recall studies, if the respondent has indicated they would like to view their nutrition profile during their recall, an RNR will be displayed to the respondent after the recall is completed.

For food records, the report will only be available to the researcher on the researcher website and may be distributed to the respondent by the researcher. This is to ensure that respondents do not react to the reporting process by changing their intakes on previous or subsequent record reporting days.

How researchers can view their respondent's RNRs

Researchers can view an RNR provided to a respondent by selecting the view link in the **Nutrition Report** column (**Figure 8-4**). After selecting **View** on the row for a Username, a new page will open with the contents of the report. For both recalls and food records, the report is provided to the researcher instantly upon respondents' completion of the intake information.

Figure 8-4. Researcher access of the Respondent Nutrition Report.



9. Data Analysis

Researchers can obtain food and nutrient analysis output files from the **Analytic File** tab. Files can be requested for all respondents, for one respondent, or for a specific date range.

Table 9-1. Analysis output files and included data.

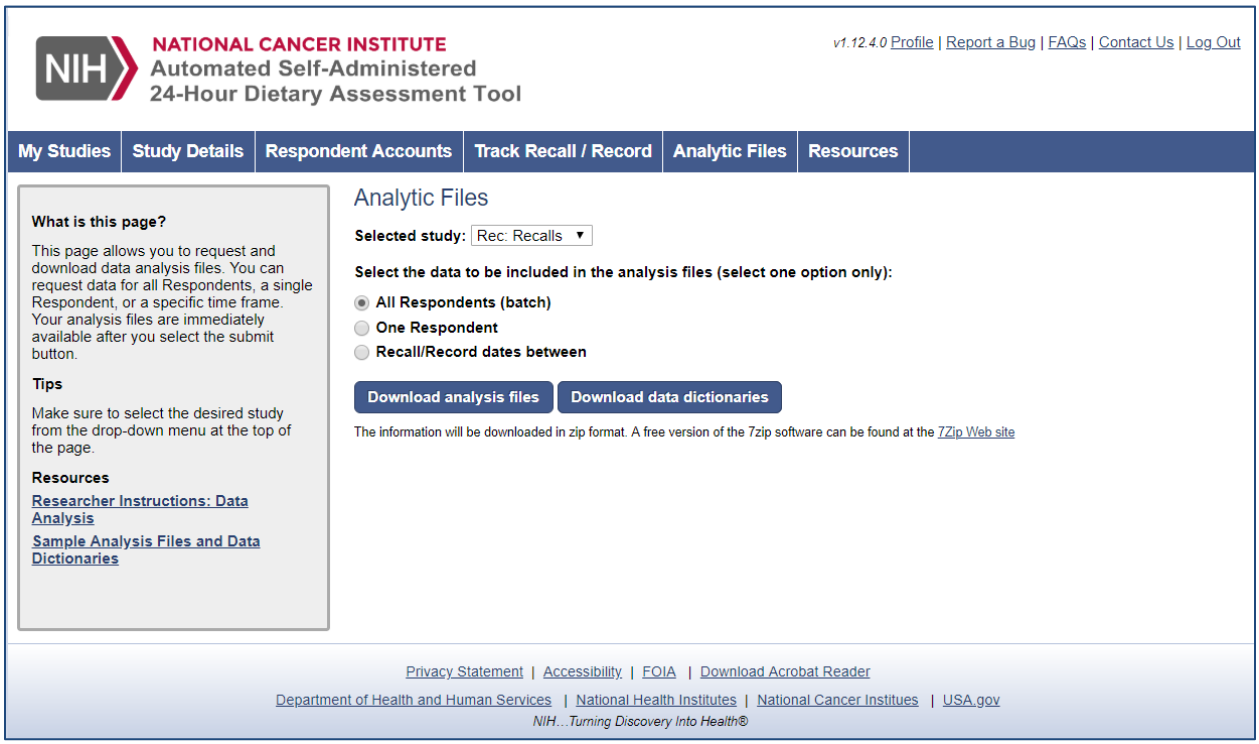
Analysis File	Content Description
Responses	Data by respondent, by day, providing probe questions and answers.
Items	Data by **food and beverage item,** providing food codes, gram weights, nutrient and food group values.
Totals	Data by respondent, by day, providing total nutrient and food group values for **foods and beverages**.
INS	Data by **supplement,** providing supplement codes, gram weights and nutrient values.
TS	Data by respondent, by day, providing total nutrient values for **supplements**.
TNS	Data by respondent, by day, providing total nutrient and food group values for **foods, beverages, and supplements combined**.

- Data dictionaries for each analysis file type is in Appendix C
- Sample output files can be found at https://epi.grants.cancer.gov/asa24/researcher/sample.html
- The food, supplement, and nutrient databases used for the ASA24-2020 are described in Appendix B. See the databases used for all versions of ASA24 at https://epi.grants.cancer.gov/asa24/comparison.html
- Additional information on the FNDDS and FPED are available from the U.S. Department of Agriculture's website at https://www.ars.usda.gov/northeast-area/beltsville-md-bhnrc/beltsville-human-nutrition-research-center/food-surveys-research-group/.

Obtaining Analytic Files

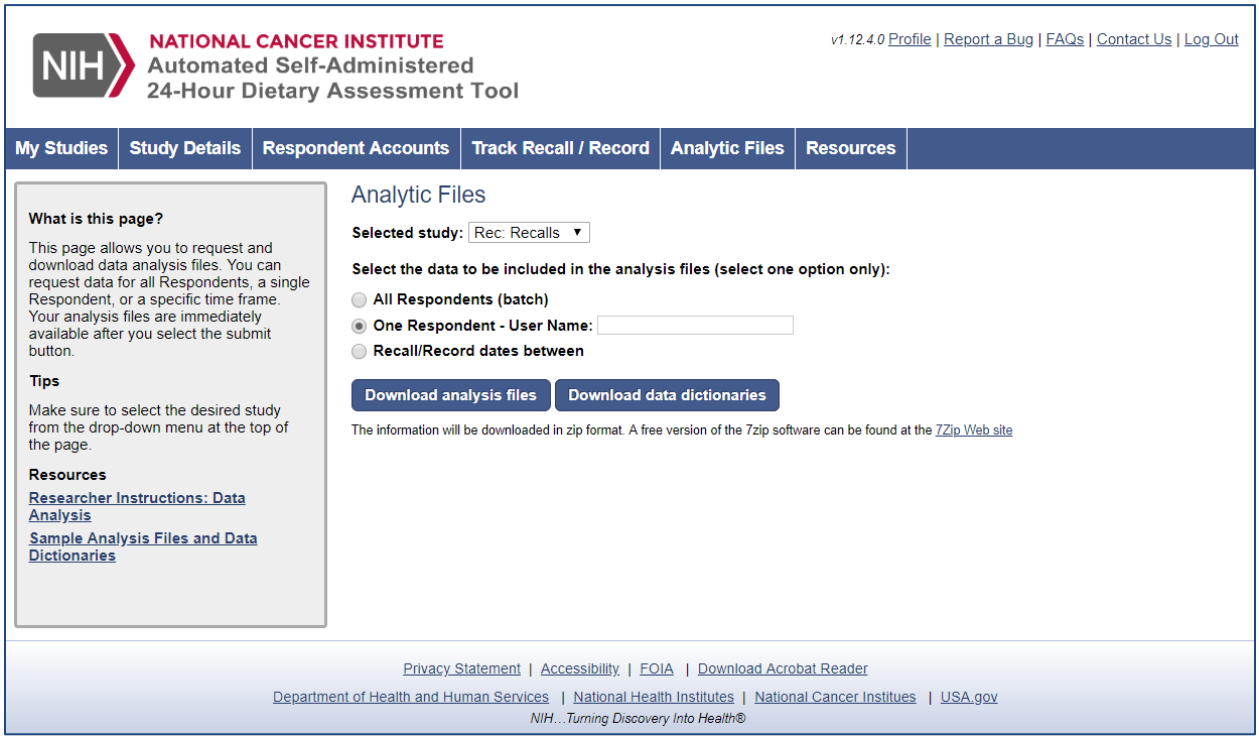
Researchers request analysis output files on the **Analytic Files** tab (Figure 9-1). Be sure to choose the study of interest from the **Selected study** drop-down menu.

Figure 9-1. Accessing analytic files.



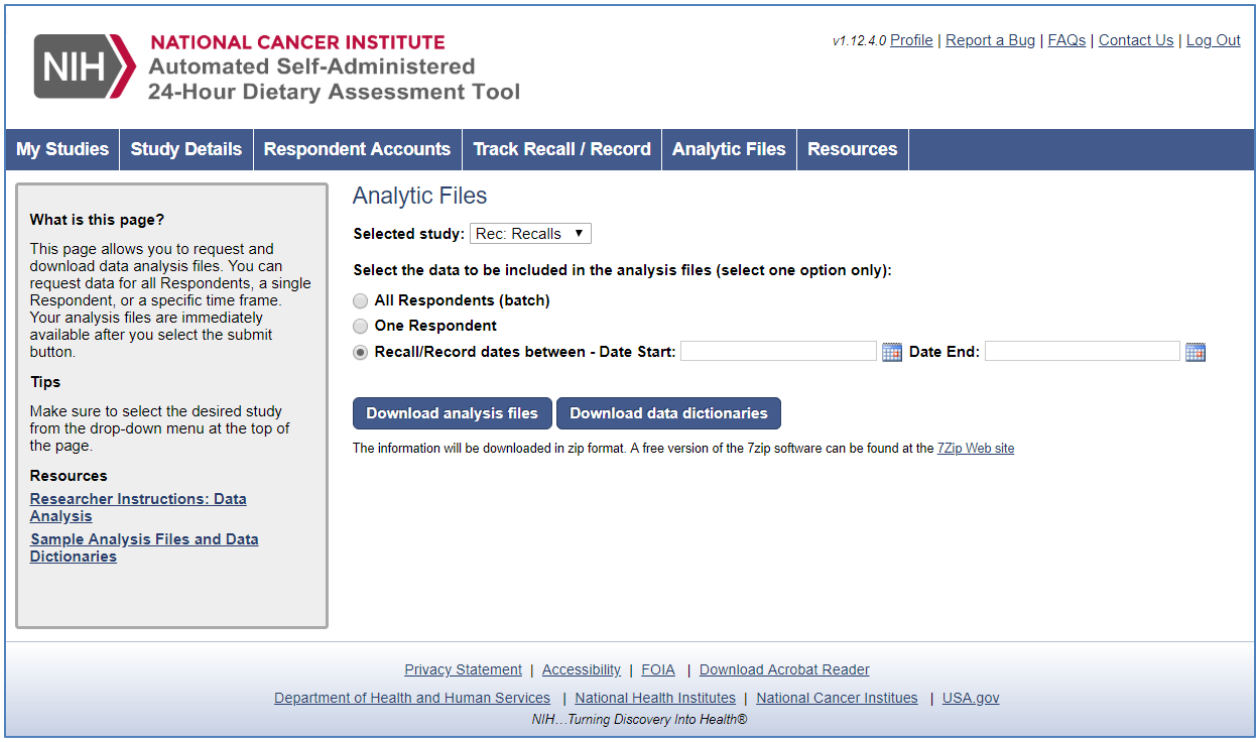
- The **All Respondents (batch)** option generates output files for all recalls/records completed to date for all study respondents.
- The **Respondent** option (Figure 9-2) generates output files for all recalls/records completed to date for a particular respondent.
- Data files are provided in CSV format and can be opened using Excel or imported into statistical software.

Figure 9-2. Viewing analyses for a single respondent.



A researcher can also view output files for recalls or records completed between a specified range of dates (Figure 9-3).

Figure 9-3. Viewing recall or record output files for a specified time period.



As with any study, researchers should carefully assess the quality of the data. To assist with this, output files include a status flag to indicate whether a recall or record day was completed (i.e., whether the respondent completed the recall/record through the last question). Refer to the data dictionaries for descriptions of the variables (Appendix C). Incomplete recalls or records may be deemed acceptable by a researcher depending upon how far the respondent got in completing their intake day and what data are missing (e.g., missing only a valid response to the final question, which queries whether intake was usual; as opposed to missing details on portion size). It is also possible that a researcher may wish to exclude a recall or record coded as complete by ASA24 because the data entered by the respondent are of poor quality. Tips on reviewing output data are available at https://epi.grants.cancer.gov/asa24/resources/cleaning.html.

10. Key Terms

ASA24 Help Desk: The ASA24 Help Desk is monitored by NCI-designated staff charged with monitoring and maintaining the ASA24 researcher and respondent websites. The administrator provides general support to researchers throughout study set-up and administration. Email ASA24Helpdesk@westat.com to contact the Help Desk.

Attempts: For *scheduled* recall studies only (see below), researchers can specify the number of times a respondent can try to complete each recall. For example, for a study collecting 3 days of recall data, the researcher may choose to allow the respondent 4 attempts (i.e., 4 different dates) to complete each recall, resulting in a total of 12 attempts. This information will be specified by the researcher as part of the study setup process.

Consecutive Recalls: Researchers may wish to have respondents complete recalls for consecutive days, to obtain data for periods longer than 24 hours. However, given that it is possible to collect food records using ASA24, researchers should consider if this is a better option than collecting consecutive recalls. Consecutive recalls are possible only under the following conditions:

(1) Intake time frame: Midnight to Midnight - respondents must finish reporting in 24 hours

OR

(2) Intake time frame: Last 24 Hours - respondents logging in to the system at the exact same time each day.

For example, in a study with an intake time frame of "Last 24 Hours," if a respondent logs in at noon on Monday for the first recall and noon on Tuesday for the second recall, information on food and drinks consumed during the previous 48 hours will be captured. However, if a respondent logs in at noon on Monday and 2:00 p.m. on Tuesday, information on food and drinks consumed from noon to 2:00 p.m. on Monday will be missing.

Consecutive recalls are not possible for studies with an intake time frame of "Midnight to Midnight" and if during study setup, the selection "by 8 am" was made for "Time Provided to Complete Recall."

Consecutive-Day Record (records only): For studies with consecutive records, respondents report dietary intake for two or more consecutive days. A consecutive record will begin on the first day a respondent logs in. If researchers choose a consecutive study type, they must specify the maximum **Number of Consecutive Days** that respondents will report for a record. If collecting multiple consecutive day records, the number of consecutive days for each record must be the same. For example, a researcher wishing to collect a three-day record would enter

"3" as the maximum number of consecutive days. If they wanted to collect a second record within the same study, it will also be a three-day food record.

Data Dictionary: A data dictionary identifies the contents of an analytic file, including the variable names of the nutrient fields. Data dictionaries are available for download from the researcher website and included as Appendix C.

Demo_User Account: For each registered study, a Demo_User Account is provided within the first Usernames and Passwords file downloaded for a specific study, which enables researchers to view customizations they make to the respondent website (e.g., logo, welcome and thank-you text, optional modules) and to complete one or more practice recalls or records. The Demo_User Account details are included in the first username/password file that is downloaded as part of the process of creating respondent accounts. Data entered to the respondent website using the Demo_User Account do not appear in the study reports or analytic files.

Intake Date (applies to recalls only): The intake date is the date for which a respondent will report their food and drink consumption. If a respondent is providing intake information from "Midnight to Midnight" the previous day, then the intake date will be that day. If a respondent is providing intake information for the "Last 24 Hours," the intake period will generally span two calendar dates, and the intake date will be the later of the two dates. *See also Reporting Date.*

Intake time frame (applies to recalls only): The Intake Time frame refers to the 24-hour period for which respondents will recall their food and drink consumption. The Time frame will be either: "Midnight to Midnight" or the "Last 24 Hours," as defined by the researcher during study setup.

Single-day Record (applies to records only): For studies with single-day records, respondents can report any number of nonconsecutive, single-day Records. For either study type.

Recall/Record Number: The Recall/Record Number for each recall or record completed by a respondent is displayed in the analytic files that can be downloaded from the site (see Data Analysis).

Reporting Date: For recalls, the reporting date is the date on which the respondent accesses ASA24 and reports food and drink intake for either the previous day from "Midnight to Midnight" or for the "Last 24 Hours." For records, the reporting date can be the same day as the intake date. The reporting date for an intake is displayed on the output files that can be downloaded from the **Analytic Files** tab. Simply, the *reporting date* is the date a respondent is accessing the ASA24 system to record intake, compared with the *intake date*, which is the date the eating occasions occurred. For recalls, the intake date is typically the date before the reporting date, while for records, the dates are intended to be the same.

Researcher: The term "researcher" denotes a researcher, clinician, instructor, member of the study staff, or other health professional accessing the ASA24 researcher website.

Respondent: The term "respondent" includes anyone completing a recall or record on the ASA24 respondent website. In any given study or setting, researchers may choose to use other terms such as participant, patient or study subject; this term is meant to encompass these and other synonyms.

Respondent Nutrition Reports (RNR): If researchers have selected this option, respondents are provided with the opportunity to obtain formatted reports that provide information on how their daily intake of nutrients and food groups compares to country-specific dietary guidance. Generated reports are also available for researchers to view from the researcher website. View the section on Viewing the Respondent Nutrition Report for more information on the RNR.

Scheduled Recall Study (recalls only): Choosing a scheduled study type means that the researcher will designate specific intake dates for each respondent. Respondents will only be allowed to log in to the respondent website on the reporting dates corresponding to these intake dates. The intake dates are predetermined during study set-up and the ASA24 system permits access only on the applicable reporting dates. By limiting access, the scheduled study approach is helpful in ensuring that respondents complete their recalls on the dates desired by the researcher. Reporting dates can be generated by the Respondent Accounts Wizard or accessed through the **Track Recalls** tab that used the intake dates from the uploaded Import File. For scheduled recalls, dates can be set for multiple attempts (i.e., backup dates) for each recall in case the respondent does not complete the recall on the assigned date.

Session: Throughout the ASA24 site, the term session is used to signify a period during which a respondent is continuously logged in to the site. When setting up a study that will collect recalls, researchers can choose whether respondents will be allowed a single session per recall or multiple sessions. The ASA24 system will automatically log a respondent out after 30 minutes of inactivity; this allows the respondent to step away from their computer for a brief period while completing a recall within a single session. As records are to be completed in real time, it is expected that respondents will log in and out of the website multiple times. Each of these sessions is recorded.

Study Abbreviation: The Study Abbreviation is provided by the researcher when setting up a new study. It must be unique to the ASA24 system and is composed of up to eight letters. The username for each respondent in a study will be a combination of the Study Abbreviation and the StudyID.

StudyID: Researchers must supply an original study identifier for each respondent, either through the Respondent Accounts Wizard or through the Import File. The StudyID is used on all reports and analytic files to enable the researcher to link ASA24 data with other study data. It must be composed of numbers only, up to a maximum of 24 digits.

Unscheduled Recall Study (applies to recalls only): An unscheduled recall study is one in which intake dates and reporting dates are not scheduled within the ASA24 system, requiring the researcher to manage the timing of recalls outside the ASA24 system. Researchers should bear in mind that when the unscheduled study option is selected, respondents' access to the ASA24 system will not be limited to certain dates.

Usernames and Passwords: Each ASA24 user must have a username and password to log into the researcher or respondent websites. Researchers and study staff are assigned usernames and passwords to access the researcher website. For respondents, the username will be composed of the **Study Abbreviation** and the **StudyID** specified by the researcher.

11. Tips for Managing Studies Using ASA24

Pilot Studies

Researchers are encouraged to conduct a pilot study to demonstrate or test the utility of ASA24 in their study population. Researchers either can register the pilot study by entering all of the necessary information or by uploading dedicated StudySubjectIDs for piloting and testing. Refer to the instructions for Registering to use the ASA24 system.

Large Studies (100,000 or more respondents) with Waves

If desired to facilitate administration, researchers can treat each wave of data collection (e.g., baseline and follow-up recalls or records) as a separate study. It will be possible to view information about all the studies from the researcher website. Data from the waves can be downloaded and combined.

Multi-site Studies

Researchers with multi-site studies can treat each site as a separate study. The coordinating center or principal investigator can have access to all sites and each site can designate particular staff to have access to their data. Alternatively, researchers can have one large study with their own designated study site.

Adding Respondents

Researchers can append new respondents to an existing study, as needed, by using the Respondent Accounts Wizard or uploading a new Import File (see Setting Up a Study). This is particularly useful for studies with rolling enrollment.

Adding Recalls or Records

To add additional recalls or records to an existing study, use the Respondent Accounts Wizard (recalls only) or upload a new **Import File** (see Setting Up a Study). All new Intake Dates must be from the present day forward.

Access from a Study Website

Some studies may have a centralized website for study respondents. Please use the **Contact Us** function from the researcher website to contact the ASA24 Help Desk (ASA24Helpdesk@westat.com) regarding single sign-on options to enable your respondents to access ASA24 from your study website. A redirect to the ASA24 respondent website can be provided, meaning the respondent would not require an additional username and password to log in to and use the ASA24 system.

12. Helpful Links

- **NCI ASA24 Website**
  Includes background information, downloadable resources for study participants and staff, descriptions of the different versions of ASA24, and FAQs
  https://epi.grants.cancer.gov/asa24/
- **ASA24 Researcher Website**
  https://asa24.nci.nih.gov/researchersite/
- **ASA24 Respondent Website**
  https://asa24.nci.nih.gov/
- **Register a Study and Best Practices for Using ASA24**
  https://epi.grants.cancer.gov/asa24/register/
- **Known Issues and Workarounds**
  http://epi.grants.cancer.gov/asa24/resources/issues.html
- **ASA24 Listserv**
  Allows potential/current users to communicate with the ASA24 team and other users
  https://list.nih.gov/cgi-bin/wa.exe?A0=ASA24-L

Appendix A: ASA24 Researcher Agreement

ASA24® Researcher Agreement

Electronic Certification (E-Certification) and Agreement For use of the Automated Self-Administered 24-hour Dietary Assessment Tool ("ASA24") and Transfer of Data

Epidemiology and Genomics Research Program Division of Cancer Control and Population Sciences

National Cancer Institute

DEFINITIONS:

NCI: Epidemiology and Genomics Research Program, Division of Cancer Control and Population Sciences, National Cancer Institute, National Institutes of Health (NIH), an agency of the United States Public Health Service (PHS) within the Department of Health and Human Services (DHHS)

RESEARCHER: An organization, as represented by its academic, clinical, or private researchers conducting observational studies with human subjects. "RESEARCHER" may also include academic, clinical, or private individuals who conduct observational studies with human subjects under their own legal authority independent of an employer or parent organization for research, treatment or education purposes.

DATA: De-identified human dietary intake data collected by the NCI under auspices of NCI's Automated Self-Administered 24-hour Dietary Assessment Tool ("ASA24") and resulting calculations. "DATA" does not mean the ASA24 database, associated databases, or software used to create and run the ASA24 system.

RECITALS:

> WHEREAS, the NCI has constructed a research tool in the form of an ASA24 computerized interview and database, and this database is intended to assist RESEARCHER and human subjects under the RESEARCHER's supervision with management of DATA associated with those human subjects; and
>
> WHEREAS, the RESEARCHER intends to direct human subjects under RESEARCHER's supervision to submit dietary intake data to the ASA24 database; and,
>
> WHEREAS, the NCI wishes the RESEARCHER to have access to DATA describing the human subjects under RESEARCHER's supervision;

In consideration of the above, the RESEARCHER and NCI agree to the following:

1. The RESEARCHER will be responsible for directing human subjects under its supervision to submit DATA to the NCI. NCI will store the DATA in NCI's ASA24 database. NCI will maintain the DATA in the absence of identifying information; however, NCI will have the right to assign a unique alphanumeric username tag to records describing individual human subjects. NCI shall ensure that the nature of such tag will prevent NCI from determining human subject identities. The RESEARCHER, but not NCI, will retain the crosswalk for mapping the tag to identify individual human subjects under

RESEARCHER's supervision. NCI will not have access to the crosswalk. NCI will not communicate with any human subjects providing DATA.

2. DATA submitted to the NCI is the property of the NCI for distribution purposes and shall be made available as a service to research, academic and clinical communities.

3. The DATA will be used only for research, clinical and academic purposes. THIS DATA WILL NOT BE USED BY NCI TO TREAT OR DIAGNOSE HUMAN SUBJECTS. In the event that:

   (a) a party to this agreement is able to deduce the identity of an individual human subject whose information is a component of the DATA;

   And,

   (b) the human subject is not being supervised by or under care of the party,

then that party agrees it will not attempt to identify or contact such human subject and, furthermore, will notify the other party of its ability to make such identification.

4. Neither NCI nor RESEARCHER will use the DATA unless it has obtained all appropriate clearances to use the DATA, including but not limited to clearance by an Institutional Review Board or equivalent governing body. The use and handling of the DATA by either party will be performed in compliance with all applicable statutes and regulations.

5. The RESEARCHER may redistribute DATA to third parties for research, clinical, and academic purposes under conditions of use no less restrictive than those of this Agreement.

6. The RESEARCHER agrees to acknowledge the source of the DATA in any publications reporting use of it.

7. NCI shall have the right to conduct quality assurance measures of the DATA including, but not limited to, reviews of system logic, evaluation of missing DATA, and summary statistics based on DATA across the entire system. No evaluation of, or publication based on, a single registered study will be performed by NCI. The NCI represents that its role in managing the DATA shall be primarily archival, and that the NCI will not conduct investigative activities with the DATA.

8. Any DATA delivered pursuant to this Agreement is understood to be experimental in nature. THE NCI MAKES NO REPRESENTATIONS AND EXTENDS NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED. THERE ARE NO EXPRESS OR IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR THAT THE USE OF THE DATA WILL NOT INFRINGE ANY PATENT, COPYRIGHT, TRADEMARK, OR OTHER PROPRIETARY RIGHTS.

9. No indemnification for any loss, claim, damage, or liability is intended or provided by any party under this agreement. Each party shall be liable for any loss, claim damage, or liability

that said party incurs as a result of said party's activities under this agreement, except that the NCI, as an agency of the United States, assumes liability only to the extent as provided under the Federal Tort Claims Act (28 U.S.C. Chapter 171). If the RESEARCHER is a component of or an agency of a State government then RESEARCHER assumes liability only to the extent authorized under the laws of the State or Commonwealth.

10. RESEARCHER agrees not to claim, infer, or imply endorsement of the RESEARCHER by the NCI and by the Government of the United States of America.
11. Upon request by the NCI, the RESEARCHER will perform any of the following as directed by the NCI: (a) immediately cease use of the DATA; (b) dispose of DATA provided by the NCI that is in the RESEARCHER's possession.

Any false or misleading statements made, presented, or submitted to the Government, including any relevant omissions, under this Agreement are subject to all applicable civil and criminal statutes including Federal statutes 31 U.S.C. §§ 3801-3812 (civil liability) and 18 U.S.C. § 1001 (criminal liability including fine(s) and/or imprisonment).

By accepting the terms of this agreement, the RESEARCHER certifies that the information submitted by the RESEARCHER is true, complete and accurate to the best of RESEARCHER's knowledge. The person accepting the terms of this agreement for the RESEARCHER has the requisite power and authority to accept the terms of this Agreement.

ASA24 is a registered trademark of DHHS.

Appendix B: Nutrients and Food Groups Included in ASA24 Analysis Reports

Nutrients in ASA24 U.S. version are provided by USDA's Food and Nutrient Database for Dietary Studies (FNDDS), while the food group data is provided by the USDA's Food Patterns Equivalents Database (FPED). The table below lists the versions of FNDDS and FPED used for the U.S. version of ASA24-2020.

Table B-1. Nutrient, Food Group, and Supplement Databases by respondent website version.

	ASA24-2020 (US version)
Food codes and nutrient values	Food and Nutrient Database for Dietary Studies (FNDDS), 2015-16,
Food group and equivalent values	Food Patterns Equivalents Database (FPED) 2015-16
Supplement codes and nutrient values	National Health and Nutrition Examination Survey (NHANES) Dietary Supplements Database (DSD), 2015-16

Information about the nutrient and food group databases is available using the links below:

More information is available on the nutrient and food group databases used for all versions of ASA24 at https://epi.grants.cancer.gov/asa24/comparison.html.

A full description of the FPED categories can be viewed at https://www.ars.usda.gov/ARSUserFiles/80400530/pdf/fped/FPED_2015_16_Fact_Sheet.pdf

List of Nutrients and Food Groups Included in the ASA24 Analysis Reports

Researchers, clinicians, and educators can use ASA24-2020 to analyze 65 nutrients and 37 food groups (U.S. versions).

The ASA24 data analysis files provide data on the following nutrients and food groups:

NUTRIENTS

Energy & Macronutrients

Energy (kcal)

Protein (g)

Total Fat (g)

Carbohydrate (g)

Water (g)

Alcohol (g)

Sugars, total (g)

Fiber, total dietary (g)

Vitamins

Folate, total (mcg)

Folic acid (mcg)

Folate, food (mcg)

Folate, DFE (mcg_DFE)

Niacin (mg)

Retinol (mcg)

Riboflavin (mg)

Thiamin (mg)

Vitamin A, RAE (mcg_RAE)

Vitamin B-6 (mcg)

Vitamin B-12 (mcg)

Added Vitamin B-12 (mcg)

Vitamin C (mg)

Vitamin D (D2 + D3) (mcg)

Vitamin E, alpha-tocopherol (mg)

Added Vitamin E (mg)

Vitamin K, phylloquinone (mcg)

Minerals

Calcium (mg)

Copper (mg)

Iron (mg)

Magnesium (mg)

Phosphorus (mg)

Potassium (mg)

Sodium (mg)

Selenium (mcg)

Zinc (mg)

Carotenoids

α Carotene (mcg)

β Carotene (mcg)

β Cryptoxanthin (mcg)

Lycopene (mcg)

Lutein + Zeaxanthin (mcg)

Fats and Cholesterol

Total Fat (g)

Cholesterol (mg)

Fatty acids, total saturated (g)

Fatty acids, total monounsaturated (g)

Fatty acids, total polyunsaturated (g)

Other Substances

Caffeine (mg)

Theobromine (mg)

Choline, total (mg)

Specific Fatty Acids

4:0, Butanoic acid (g)

6:0, Hexanoic acid (g)

8:0, Octanoic acid (g)

10:0, Decanoic acid (g)

12:0, Dodecanoic acid (g)

14:0, Tetradecanoic acid (g)

16:0, Hexadecanoic acid (g)

18:0, Octadecanoic acid (g)

16:1, Hexadecenoic acid, undifferentiated (g)

18:1, Octadecenoic acid, undifferentiated (g)

20:1, Eicosenoic acid, undifferentiated (g)

22:1, Docosenoic acid, undifferentiated (g)

18:2, Octadecadienoic acid (g)

18:3, Octadecatrienoic acid (g)

18:4, Octadecatetraenoic acid (g)

20:4, Eicosatetraenoic acid (g)

20:5 n-3, Eicosapentaenoic acid [EPA] (g)

22:5 n-3, Docosapentaenoic acid [DPA] (g)

22:6 n-3, Docosahexaenoic acid [DHA] (g)

FOOD GROUP EQUIVALENTS

Fruit categories expressed in cup equivalents including:

- Total fruits
- Whole or cut citrus, melons, berries (excludes juices)
- Whole or cut other fruits (excludes juices)
- Fruit juices

Vegetable categories expressed in cup equivalents including:

- Total vegetable (excludes legumes)
- Dark green vegetables
- Total red and orange vegetables
- Tomatoes and tomato products
- Other red and orange vegetables (excludes tomatoes)
- Total starchy vegetables
- White potatoes
- Other starchy vegetables (excludes white potatoes)
- All other vegetables
- Legumes (beans and peas) computed as vegetables

Grain categories expressed in ounce equivalents including:

- Total whole and refined grains
- Total whole grains
- Total refined grains

Protein categories expressed in ounce equivalents including:

- Total protein foods (includes meat, poultry, seafood, eggs, soy, nuts and seeds; excludes legumes)
- Total meat, poultry, and seafood (excludes eggs, soy, nuts and seeds, and legumes)
- Beef, veal, pork, lamb and game meat
- Cured meats
- Organ meat
- Poultry

- Seafood high in n-3 fatty acids
- Seafood low in n-3 fatty acids
- Eggs and egg substitutes
- Soy products excluding soy milk
- Peanuts, tree nuts and seeds (excludes coconut)
- Beans and peas (legumes) computed as protein foods

Dairy categories expressed in cup equivalents including:

- Total milk, yogurt, cheese, and whey
- Milk products (includes calcium-fortified soy milk)
- Yogurt
- Cheese

Fat categories expressed in grams including:

- Oils (includes fats naturally present in nuts, seeds, seafood, and vegetable sources; except palm, coconut, and hydrogenated oils)
- Solid fats (includes fats naturally present in meat, poultry, eggs, dairy, palm and coconut oils and hydrogenated oils)

Added Sugar category expressed in teaspoon equivalents

Alcohol category expressed as number of drinks

Appendix C: Data Dictionaries for Analysis Files

Response Files

Use these links to view the data dictionary for the file containing the response selections made by participants.

ASA24-2020 Response File Data Dictionary for a Recall for U.S.
ASA24-2020 Response File Data Dictionary for a Record for U.S.

Items Files

Use these links to view the data dictionaries for the files containing nutrient and food group information for individual foods.

ASA24-2020 Items File Data Dictionary for a Recall for U.S.
ASA24-2020 Items File Data Dictionary for a Record for U.S.

Totals/Daily Total Nutrient and Pyramid Equivalents

Use these links to view the data dictionaries for the files containing total nutrient and food group information for an intake day.

ASA24-2020 Totals File Data Dictionary for a Recall for U.S.
ASA24-2020 Totals File Data Dictionary or a Record for U.S.

Individual Supplements

Use these links to view the data dictionaries for the files containing nutrient information for individual supplements.

ASA24-2020 INS File Data Dictionary for a Recall for U.S.
ASA24-2020 INS File Data Dictionary or a Record for U.S.

Daily Total Supplements

Use these links to view the data dictionaries for the files containing total nutrients for supplements for an intake day.

ASA24-2020 TS File Data Dictionary for a Recall for U.S.
ASA24-2020 TS File Data Dictionary or a Record for U.S.

Daily Total Nutrients from Foods and Supplements

Use these links to view the data dictionaries for the files containing total nutrients for foods and supplements for an intake day.

ASA24-2020 TNS File Data Dictionary for a Recall for U.S.
ASA24-2020 TNS File Data Dictionary or a Record for U.S.

Appendix D: Modules

This section lists optional ASA24 modules which may be administered to respondents.

Location Module

The **Location** module is activated by default because the recall of location may provide context to aid respondents in recalling what they ate at a meal. This module can be turned off by the researcher.

Location choices are:

- Home
- Fast food restaurant
- Other restaurant
- Cafeteria
- Bar or Tavern
- Work (not in cafeteria)
- Car
- Sports or entertainment venue
- Someplace else
- School, cafeteria
- School, not in cafeteria
- Don't know

Food Source Module

The **Food Source** module queries where respondents obtained each reported food or most of the ingredients for it. Because this source is asked for each food or recipe reported, selecting this module increases the time it takes to complete a recall or record.

If the food source module is selected, the location module must also be selected. If the location value is Restaurant for the meal, source is not asked for any of the foods at that meal.

Researchers may contact the **ASA24 Help Desk** (ASA24Helpdesk@westat.com) to create a custom source list.

Food Source choices are:

- Supermarket or grocery store
- Convenience store
- Other store (any type)

- Produce stand, farmer's market, orchard, or community supported agriculture (CSA) organization
- Fast food or drive-thru restaurant
- Other restaurant, bar or tavern
- School cafeteria
- Other cafeteria
- Grown or caught by you or someone you know
- Sport, recreation, or entertainment venue
- Soup kitchen, shelter, or food pantry
- Street vendor or vending truck
- Vending machine
- Child care center, day care, or camp
- Residential dining facility or adult day care center
- Not applicable
- Other
- Don't know

TV/Computer Use Module

The **TV and Computer Use** module collects information about TV and computer use during meals. Respondents can select multiple answers.

TV and Computer Use choices are:

- Watching TV
- Using a computer or laptop
- Using a mobile phone or tablet
- Neither of these

Ate With Module

The **Ate With** module collects information about who the respondent ate with.

Ate With responses are:

  - Yes (indicate: Family member(s) or Other(s))
  - No

Supplement Module

When the **Supplement** module is turned on, text on the respondent website is changed to include the word "supplements" to remind respondents to report them. For example, "Did you

report all the foods, drinks, *and supplements*?" Additionally, the Frequently Forgotten Foods prompt at the end of the recall/record includes a reminder to include supplements. Respondents can report supplements regardless of this setting just as they do for foods and beverages, regardless if this module is turned on.

Respondent Nutrition Report Module

Researchers can choose to provide reports to respondents that compare daily nutrient and food group intakes to country-specific dietary guidance for ASA24-2020. If this module is turned on for a recall study, at the time a respondent completes reporting for a recall, they will be asked if they would like a report. If yes, they will be asked to answer questions about sex and age and a downloadable report will immediately be generated for that day.

For a record study, researchers can turn on the module and the nutrition report will be generated and available via the researcher website only. The researcher is responsible for downloading or printing the report and distributing it to respondents. View a sample report at https://epi.grants.cancer.gov/asa24/respondent/nutrition-report.html.

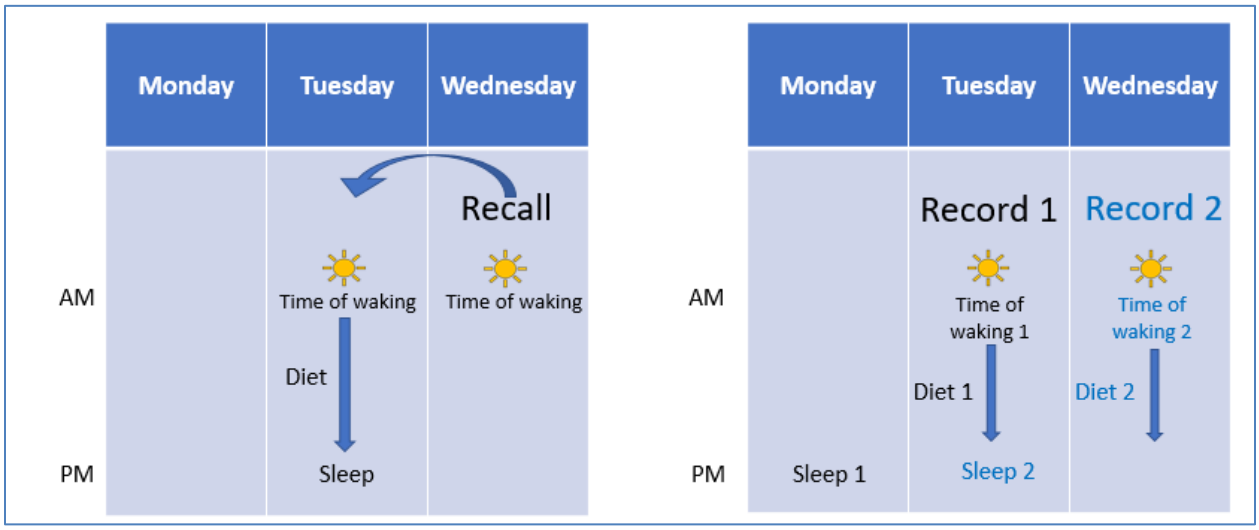
For more information on how researchers can view the RNR, please see the section on Viewing the Respondent Nutrition Report.

Sleep Module

When the **Sleep** module is checked, respondents are prompted after they complete their diet assessment to answer questions about sleep timing, quantity, and quality. The module allows researchers to examine the associations between sleep and dietary intake, timing of eating, and other variables in the context of the 24-hour day.

Dependent on whether a researcher uses a dietary recall or record, they can get sleep data that helps them examine the association of diet on sleep and morning fasting, or the association of sleep on diet.

Figure A. Sequence of activities captured in the sleep module: recall vs. record



The recall paired with the sleep module allows researchers to assess how dietary intake may influence the following night of sleep.

The use of consecutive records with the sleep module allows researchers to assess how dietary intake may influence the following night of sleep, in addition to how the previous night of sleep may influence dietary intake.

The questions asked for the **recall** are: (response codes are found in the TNS Data Dictionary file)

1. What time did you wake up yesterday? (day, date)
    - Time ('HH:MM' ('00:00' to '12:59') AM/PM)
    - I prefer not to answer
    - I don't know

2. How did you feel when you woke up yesterday?
    - Refreshed
    - Somewhat refreshed
    - Tired
    - I prefer not to answer
    - I don't know

You reported eating your last meal yesterday at [time]. After this…

3. What time did you get into bed? *This may not be the time that you began trying to fall asleep.*
    - Time ('HH:MM' ('00:00' to '12:59') AM/PM)
    - I prefer not to answer
    - I don't know

4. What time did you begin trying to fall asleep?
    - Time ('HH:MM' ('00:00' to '12:59') AM/PM)
    - I prefer not to answer
    - I don't know

5. About how long did it take you to fall asleep, from when you first began trying?
    - Range of values (Hours 0 to 24)
    - Range of values (Minutes 0 to 59)
    - I prefer not to answer
    - I don't know

6. How many times did you wake up, not counting the final time you woke up?
    - None [Skip to 8]
    - Range of values (no limit)
    - I prefer not to answer [Skip to 8]
    - I don't know [Skip to 8]

7. In total, about how long were you awake? *What was the total time you were awake between the time you first fell asleep and the final time you woke up?*
    - Range of values (Hours 0 to 24)
    - Range of values (Minutes 0 to 59)
    - I prefer not to answer
    - I don't know

8. What was the final time you woke up today? (day, date)
    - Time ('HH:MM' ('00:00' to '12:59') AM/PM)
    - I prefer not to answer
    - I don't know

9. What time did you get out of bed today? *This may be different from the final time you woke up for example, you may have woken up at 6:35 AM but did not get out of bed to start your day until 7:20 AM.*
    - Time ('HH:MM' ('00:00' to '12:59') AM/PM)
    - I prefer not to answer
    - I don't know

10. How well did you sleep last night?
    - Very good
    - Good
    - Fair
    - Poorly
    - Very poorly
    - I prefer not to answer
    - I don't know

11. How did you feel when you woke up today (date)?
    - Refreshed
    - Somewhat refreshed
    - Tired
    - I prefer not to answer
    - I don't know

12. How does the amount of sleep you reported between (date) and (date) compare to your usual sleep?
    - Much more than usual
    - Usual
    - Much less than usual
    - I prefer not to answer
    - I don't know

The questions asked for a **record** are: (response codes are found in the TNS Data Dictionary file)

1. What time did you get into bed yesterday (day, date)? *This may not be the time that you began trying to fall asleep.*
    - Time ('HH:MM' ('00:00' to '12:59') AM/PM)
    - I prefer not to answer
    - I don't know

2. What time did you begin trying to fall asleep?
    - Time ('HH:MM' ('00:00' to '12:59') AM/PM)
    - I prefer not to answer
    - I don't know

3. About how long did it take you to fall asleep, from when you first began trying?

- Range of values (Hours 0 to 24)
- Range of values (Minutes 0 to 59)
- I prefer not to answer
- I don't know

4. How many times did you wake up, not counting the final time you woke up?
    - None [Skip to 6]
    - Range of values (no limit)
    - I prefer not to answer [Skip to 6]
    - I don't know [Skip to 6]

5. In total, about how long were you awake? *What was the total time you were awake between the time you first fell asleep and the final time you woke up?*
    - Range of values (Hours 0 to 24)
    - Range of values (Minutes 0 to 59)
    - I prefer not to answer
    - I don't know

6. What was the final time you woke up today? (day, date)
    - Time ('HH:MM' ('00:00' to '12:59') AM/PM)
    - I prefer not to answer
    - I don't know

7. What time did you get out of bed today? *This may be different from the final time you woke up for example, you may have woken up at 6:35 AM but did not get out of bed to start your day until 7:20 AM.*
    - Time ('HH:MM' ('00:00' to '12:59') AM/PM)
    - I prefer not to answer
    - I don't know

8. How well did you sleep last night?
    - Very good
    - Good
    - Fair
    - Poorly
    - Very poorly
    - I prefer not to answer
    - I don't know

9. How did you feel when you woke up today (date)?

- Refreshed
- Somewhat refreshed
- Tired
- I prefer not to answer
- I don't know

10. How does the amount of sleep you reported between (date) and (date) compare to your usual sleep?
    - Much more than usual
    - Usual
    - Much less than usual
    - I prefer not to answer
    - I don't know