

FOOD FREQUENCY QUESTIONNAIRE**TABLE OF CONTENTS**

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FOOD FREQUENCY QUESTIONNAIRE

1. Background and rationale

Maintenance of body weight depends upon a balance of energy expenditure and intake, so it is important to assess the patterns of intake and to evaluate whether they are associated with weight change. In addition, intake of particular nutrients may have either a beneficial or detrimental effect on health and physical functioning of the Health ABC cohort. For example, fruit and vegetable intake and fiber intake have been shown to have inverse associations with common chronic diseases. It will be important to see if these associations are found in a cohort of older well-functioning adults.

To assess intake, we will administer a food frequency questionnaire to all members of the Health ABC cohort. The questionnaire, developed by Block Dietary Data Systems, is based on age-appropriate intake data from the NHANES III study. The food lists were based on the NHANES III 24-hour recall data for those over 65, either white or black, and residing in either the Northeast or South.

The Health ABC Food Frequency Questionnaire will be interview administered. Both frequency of consumption and amount consumed will be assessed. Food models will be used to assist in the estimation of amount consumed.

2. Equipment and Supplies

- Food questionnaire
- Laminated flashcards denoting frequency columns for each page of the food questionnaire
- 3 dimensional food models (see section 5.5 for instructions on correct procedure for using food models)

Woodblocks: There are four labeled bags of woodblocks which have the following amounts in them:

A: 1/4 cup

B: 1/2 cup

C: 1 cup

D: 2 cups

Bowls: There are three bowls, which should be labeled "B," "C" and "D." The bowls correspond approximately to the baggies:

B=1/2 cup,

C=1 cup,
D=2 cups.

Glasses: There are four glasses, which are labeled A, B, C and D.

Approximate volumes of the glasses:

A = 4-6 ounces
B = 8 ounces
C = 12 ounces
D = 16 ounces

Realistic portion size models: There are four realistic Nasco models:

1. Sliced beef model
2. Chicken breast model
3. Halibut fillet model
4. Hamburger patty model

3. Safety Issues and Exclusions

None.

4. Participant and exam room preparation

The interview should be done in a room free of distractions with food models in easy reach of both the participants and the interviewer.

5. Detailed measurement procedures

The Food Questionnaire is administered by interview, in person, using three-dimensional food models to improve quantitation.

5.1 Mechanics

Use black pen To ensure that the scanner reads correctly, use a black pen.

No other marks on the questionnaire Comments or notes should not be written on the questionnaire, as they may confuse the scanner. Comments must be on a separate page.

Bubble completely

Fill in the answer bubbles completely. Do not simply make a checkmark or an 'X' over the bubble.

One bubble per answer

Never mark two bubbles for the same answer -- both will be lost as an error.

No staples

Staples would have to be removed, and if inadvertently not removed would damage the scanner. Marks left by staples can interfere with the scanner reading of tracking marks, booklet number marks or page number marks, and necessitate someone copying over the entire questionnaire.

No extra pages

Do not insert any extra pages or papers with notes on them into the booklet, or attach yellow stickies. If not noticed prior to scanning, they might interfere with the scanning.

No folds

Do not fold the questionnaire.

5.2 General Instructions

Introducing the Food Questionnaire

Provide a transition from the other parts of the questionnaire to the Food Questionnaire section, with a phrase such as the following: "Now I'd like to ask you some questions about the foods you usually eat." Do not use phrases that include the word "diet," as some participants may think we mean "dieting," rather than simply their usual food habits. Do not spend too much time at this initial introduction.

Read questions as written

The words are not optional. Do not paraphrase. Do not omit any words. For example, "in season" is an essential part of the prompt for the foods in which it is used. Some foods that may be unfamiliar to you are being marketed nationally; do not omit them. If the participant interrupts you with an answer before you have finished the entire question, continue on reading the question; there may be foods at the end of the list that the participant didn't realize were to be included.

Participant questions

If participant asks a question for clarification, and you know the answer because it is in the Manual of Procedures, you may give them the answer; it is not necessary to reread the entire question. For example, in the general question "How often do you use fat or oil, to fry, stir fry....?": If participant asks, "Does that include butter I put on bread?" you may answer "No, just fat you may use to stir-fry...", without rereading the whole question.

Introducing the Food List

Read the introduction to the food list on page 9 of the questionnaire. The wording is as follows: "*This section is about your usual eating habits over the past year or so. This includes all meals or snacks, at home or in a restaurant or carry-out. Please tell me **how often**, on average, you eat each food. For example, twice a week, three times a month, and so forth.*" Then **show them the right flashcard to use**, then add something like "*You will be looking at this card, and giving me your answers in these categories.*"

After the last sentence, "*Sometimes I'll just ask you to tell me whether you usually eat a small, medium or large portion,*" that is the time to **point to the woodblock models** and other models, making sure the A, B, C & D are visible. It could go like this: "*Sometimes I'll just ask you to tell me whether you usually eat a small, medium, large, or extra large portion; you can just tell me whether it is model A, B, C or D,*" perhaps touching each model as you do so. If you refer to them as A, B, C or D, it will encourage the participant to refer to them that way, thus speeding up the process a little.

Foods not on the food list

The food list represents the most important nutrient sources in most people's diets. It does not and is not intended to include all possible foods that people ever eat. Thus, it is likely that some foods that a person eats will not be on the list. Do not attempt to force unmentioned foods into categories by guessing at their similarity.

5.3 Instructions About the Frequency Part of the Food Questions

Importance of frequency

Although portion size improves the accuracy of the nutrient estimates, the interviewer should be aware that frequency of consumption is much more important than exact portion size in determining long-term usual intake.

Frequency categories

Note the frequency categories at the top of the columns. On most pages these are also repeated at the bottom of the columns, to help guide the eye. Be careful to mark the right column, since being off by a column can make a big difference in the nutrient estimate.

Laminated flash cards are provided for the participant. These show the frequency response categories that you will be putting the answers into. Although you will ask the question in an open-ended way ("How often do you eat..."), you will put the participant's answers into one of the frequency categories. The participant will have these categories in front of them, on the flash cards. Encourage them to give their answers in terms of one of those categories. Participants easily get the idea, and will quickly learn to give answers in the categories shown.

The categories are not the same all the way through the questionnaire. There is a flash card for each set of response categories. As the interview moves to a different set of categories, turn the flashcard for the participant and point out that now they will give their answers in these categories.

Should I read all the response categories?

In this Food Questionnaire, the answers are all in categories, such as "Less than once per week," "1-2 per week," ... "4+ per day." In most cases it is not necessary to read the response categories every time, although you may do so if the participant is hesitating or unclear. (This may be different from instructions you receive for non-diet parts of the interview.) Instead, you will first show the participant an example of the type of categories you will be using to record their answers, and give them a laminated card with the categories printed on them. Then, you will simply ask the question in an open-ended way, wait for a response (such as "5 times a week"), and record it in the appropriate category.

Wording of the frequency questions

It is not necessary to say "How often do you eat" for every food. You can repeat the introductory phrase from time to time, but most often you should just read the next food, without the "How often...." This will make the interview go a little faster, be less boring, and perhaps encourage the participant to pick up the pace. Similarly, avoid repetitively saying "(name of food). How often do you eat that?" It is okay to say that occasionally to vary the wording and pace, but not for every food. Do not, however, just say "Do you eat ..."; this unnecessarily lengthens the interview, because then if the participant says 'yes' you still have to ask the "How often" question.

2+ per day categories

Remember to switch to the next flashcard when you come to "Biscuits/muffins," and again at beverages. For those frequency pages in which 2+/day and higher are possible answers: If the participant says "Every day," at least the first time he/she does that you should probe, "Would that be once a day or 2+ times a day?" You don't need to do that probe every time, if it appears that the participant is looking at the card and sees that there are higher frequency possibilities.

How often vs. How many

There is a potential confusion between how often and how many, particularly for the fruits. Make sure to keep them separate for the participant. For example, when you ask 'bananas', some participants may say "I eat two a week"; this could lead to double-counting if you marked '2/wk', then asked 'how many' and they said '2'. So if participant is answering fruits as "I eat two a week," explain that you will ask "How many each time" in a subsequent question; right now, you want them to tell you 'how often' per week, meaning "how many days," not how many bananas per week.

Always get the frequency ("How often") before asking about portion size ("How much" or "How many"). While the participant is thinking about their answer to "How often," do not interrupt with any mention of portion size. Do not point to a food model until after you know their answer to "How often."

Seasonality A few foods say specifically “in season.” The participant should give the frequency with which that food is consumed, **just in the few-month period when it is in season.** All other foods require an estimate of average year-round frequency of consumption. If the participant eats some of these “year-round” items more in one season than another, the reported frequency should still be a rough average over the whole year. For example, if participant says "I eat apples 3-4 times a week now that they're in season," you should say something like, "Please try to estimate how often that would average out to over the whole year."

If the participant is unable to do the conversion themselves, then the interviewer may use the following chart to estimate for them.

Average use in season	Conversion	Average year round use
2+ times per day	Shift 3 columns to the left	3-4 time per week
Every day	Shift 3 columns to the left	Twice per week
5-6 times per week	Shift 3 columns to the left	Once per week
3-4 time per week	Shift 3 columns to the left	2-3 times per month
Twice per week	Shift 2 columns to the left	2-3 times per month
Once per week	Shift 2 columns to the left	Once per month
2-3 times per month	Shift 2 columns to the left	1-11 times per year
Once per month	Shift 1 column to the left	1-11 times per year
Never	No change	Never

Buying in bulk Some participants will say something like "I buy a gallon and then drink it until I'm done with it," and then doesn't drink it so frequently for the subsequent time period. Again, you should ask them to try to average their intake over the whole year. Something like, "Please estimate how many glasses per day or per week you think you drink, on average over the whole year."

Items with more than one food

For example, "Fresh apples or pears." Do not try to get separate estimates of either frequency or portion size for the two foods. Just ask the participant to answer their frequency for that group of foods. And don't worry about the two foods having different sizes; just ask the participant to pick the woodblock model that best approximates how much he/she usually eats of that group of foods.

Frequency answers that overlap the response categories

If the participant answers with a range that does not fit exactly into one of the available categories, ask the participant to choose which of the available categories is closer to how often they use that item. For example, look at the "general questions" on page 16 of the Questionnaire. Suppose you ask the participant, "How often do you use fat or oil to fry or stir-fry?," and they answer "four or five times a week." You would then say, "Would it be closer to "3-4 times per week" or "5-6 times per week"?"

"Never" frequency

Use the "Never" column for any foods either literally never eaten, or eaten by the participant less than once per year. They will be counted as zero.

Frequency answers with different wording

Apply common sense. "Less than once a year" or "3-4 times in my life": code it as "Never" without further probing. "A couple of times a month": code as "2-3 per month" without further probing. If participant answers "Rarely" or "Hardly ever," ask "Would that be less than once per year?"; if participant indicates 'yes', code as "Never."

5.4 Instructions about the Portion Size Part of the Food Questions

Portion size is EASY in this interview You only ask portion size if participant eats the food once per week or more often. A vertical line is printed on the questionnaire showing the beginning of the frequency categories that are once per week or more often. This will help you to remember that you only ask portion size if the frequency is to the right of this dashed line, that is, once per week or more often. Ask the portion size before moving on to frequency of the next food.

You don't worry about converting to half cups, ounces, etc. You just mark the bubble corresponding the participant's portion size choice:

"A" = 1st bubble

"B" = 2nd bubble

"C" = 3rd bubble

"D" = 4th bubble

Wording of the portion size questions It is not necessary to make a full sentence out of the portion size section each time; i.e., do not say, for every food, "When you have ..., about how much/many do you have each time?" For the "how manys'," just say "How many teaspoons," etc. For the "How much"s, you can say "How much each time?" and point to the woodblock models; or, after a while, just say "A, B, C or D?"; or you can say "Which bowl?"

"XXL" If the participant says that his/her usual portion is larger than the largest model (which corresponds to the fourth bubble), record the answer as the fourth bubble.

How important is portion size? Although portion size will definitely improve the accuracy of the answers, you should not permit the participant to spend undue time on the portion size answers. This section should move along quite quickly, with a breezy "How many" or "A, B, C or D?"

5.5 The portion size models -- procedures for administration

The wood blocks, bowls and glasses are all labeled as either "A," "B," "C," or "D." If the four bubbles into which you can record the participant's answers are labeled A, B, C or D, you simply record the participant's portion size choice in the appropriately-labeled bubble.

- Woodblocks** These are the basic models, and should be used for most solid foods. There are four labeled bags of woodblocks. However, you do not need to worry about how much is in the bag, just record the choice of baggies (A, B, C or D) in the corresponding column. You always just record A= 1st bubble, B= 2nd bubble, C= 3rd bubble, D= 4th bubble.
- Bowls** There are three bowls, which should be labeled "B," "C" and "D." If the participant eats less than the smaller one, you may mark "A." **However, do remember that the smallest bowl model provided is a "B."** If participant eats more than the D size, record it as a "D." The bowls correspond *approximately* to the baggies: B=1/2 cup, C=1 cup, D=2 cups. Do not worry if they are not exact. Do not encourage participants to put the wood blocks into the bowl. However, if they want to do so on their own, that is okay. Record whichever letter they choose. In general, piles of stuff should be portion sized using the woodblocks, and liquid stuff should be in bowls.
- Realistic models** There are realistic models for several meats. See explanation below to identify the foods that should be used with these models.
- Glasses** There are four glasses, which are labeled A, B, C and D.
Approximate volumes of the glasses:
A = 4-6 ounces
B = 8 ounces
C = 12 ounces
D = 16 ounces

5.6 Correct wording for asking the portion size questions

Each food has a correct wording for asking the portion size question ("how many," "how much" etc.), and a recommended portion size model to use. The correct wording is given in the column just preceding the portion size bubbles. The cue about the correct wording is in the words underneath the portion size bubbles.

SUMMARY OF HOW TO ASK PORTION SIZE

What is under the
portion size bubbles:

How to ask the question:

A number

Ask "HOW MANY?" and get an answer in number of items.

A-B-C-D

Ask "HOW MUCH?" and get an answer as A-B-C-D referring to woodblocks, models or bowls.

“Less-Same-More”

Ask "SMALLER, the SAME, or LARGER compared to the realistic models?" Code 1st bubble for "smaller," 2nd bubble for "the same," etc.

For Beverages (except soft drinks and beer): Ask "WHICH GLASS?" get an answer as A-B-C-D.

“How many” questions

Ask "How many each time" or sometimes just "How many." Use the unit that is the name of the food (e.g., 'bananas') or that is shown in the "Portion Size" column (e.g., 'slices', 'teaspoons', 'bowls'). Code response according to participant's answer ("1," "2," "3," etc.). For example, examine "Bananas": ask portion size in an open-ended way, as "How many, each time?" You then record the answer in the appropriate bubble, "1/2," "1," "2." If the number reported is larger than shown for any of the bubbles, use the fourth bubble.

Occasionally, "How many" is awkward; so for "Cantaloupe," it would be "Do you eat 1/8, 1/4 or 1/2 a cantaloupe each time?"

Acceptable phraseology:

"How many bananas, each time?"

"How many, each time?"

"How many, on the days you eat them?"

“How much” questions

Ask "How **much** each time, A, B, C or D?," or just "A, B, C or D?," or "Which model, A, B, C or D?" Code A-B-C-D as 1st bubble, 2nd bubble, 3rd bubble, 4th bubble, without any kind of conversion, calculation or interpretation.

For example, examine "Applesauce, fruit cocktail, canned pears": In the "How Much" section, you see "A,B,C,D." For these foods, indicate the wood blocks, or the bowls, and ask the participant to choose the model closest to their usual portion.

Point to or indicate the **wood blocks** for most solid foods, and the **bowls** for things that are often/always eaten in bowls, such as stew. However, **the participant may use either the wood blocks or the bowls to give his/her answer.**

Some foods do not fit as piles, but as definite shapes. Examples are pies, and candy bars. For these, either the interviewer or the participant may push the piles of blocks into the appropriate shape, so that the participant can better judge which model best represents their serving.

Acceptable phraseology:

"How much each time? Model A, B, C or D?"

"Which of these models is closest to your usual portion?"

"Which model is closest to the amount you usually eat"

Eventually, you could say simply "A, B, C or D?"

“Which realistic model” questions

Use **Realistic models for some of the meats**. Ask, "Is your portion smaller, about the same, or larger?" Code the 1st bubble for "less than," the 2nd bubble for "same as," and the 3rd bubble for "larger." Code the 4th bubble if they emphasize that it is **much** larger than the model, twice as large, etc.

For example, examine "Hamburgers, cheeseburgers, meat loaf, at home or in a restaurant" (page 5): Under the bubbles in the "How Much" section, you see "Less," "Same," "More," "Much more." For these foods, point to the realistic model and ask the participant whether their usual serving size is less, more or about the same.

Acceptable phraseology:

- "Did or do you usually eat this amount, or more or less?"
- "Is your usual serving about the same, or smaller, or larger?"
- "Is it usually this size, less, or more?"

The following table identifies the food items for which a realistic food model should be used, and also which particular model is *recommended*. Some realistic model should be used for each of these foods, however, which particular model to use is somewhat flexible. For example, while the beef model is recommend for the "pork" food item, a participant may instead use the fish model for the "pork" item if they feel that it better represents their usual portion size.

Food Item	Recommended realistic model
"Hamburgers, cheeseburgers..."	Burger
"Beef, including steaks..."	Beef
"Liver, including chicken..."	Beef
"Pork, including chops..."	Beef
"Fried chicken, at home..."	Chicken
"Chicken or turkey..."	Chicken
"Fried fish..."	Fish
"Other fish..."	Fish

Beverages Beverages: point to the glasses and ask "Which glass is about how much you drink each time?" You would say this full question the first time, but after that just say "Which glass?"

Ask "**Which glass**" for the following foods, and code A-B-C-D as 1st bubble, 2nd bubble, 3rd bubble, 4th bubble.

Orange juice	Hi-C, etc.
Tomato juice	Other fruit juices
Glasses of milk	Wine
Coffee	Tea

Beer and soft drinks: Do not ask "glasses." Instead, ask "What size can or bottle?" The sizes are indicated in the portion size section of the questionnaire. Regular coke & beer cans are 12 ounces, but they also come in larger sizes. Remember that "**How many** cans or bottles per day or per week?" has been asked in the frequency section. **Here in the portion size section, you are asking the size of the can/bottle referred to in the frequency section.**

6. Q by Q (question by question) -- Introduction

Participant ID Number The Health ABC Enrollment ID # **must always be filled in.** This is the only way it will be possible to connect the nutrient estimates with the right individual.

Interviewer ID Number Each interviewer will be assigned a staff ID# by the Clinic Coordinator at their field center. Each staff ID # assignment shall be permanent -- that is, if an examiner leaves the study, for example, that staff ID # will not be re-used, but the next number in the sequence assigned. At the time of the diet interview, write the interviewer number in the appropriate boxes on the interview, and fill in the bubbles.

Introducing the Main Food List Read the introduction to the food list, on page 9 of the Year 2 Clinic Visit Workbook. After the "please tell me how often ... and so forth" sentence, **show them flashcard A**, then add something like "*You will be looking at this card, and giving me your answers in these categories.*"

After the last sentence, "Sometimes I'll ask you ... small, medium or large," **point to the woodblock models** and other models, making sure the A, B, C & D are visible. You can bunch them up and flatten them down, to show the participant that they can also manipulate them if it helps them to decide which model best represents their usual size of a food. Explain that you will be asking them to choose the model that is about the size of their usual serving of each food. It could go like this: "*Sometimes I'll just ask you to tell me whether you usually eat a small, medium or large portion; you can just tell me whether it is model A, B, C or D,*" perhaps touching each model as you do so. If you refer to them as A, B, C or D, it will encourage the participant to refer to them that way, thus speeding up the process.

The **time frame** that it covers is "the past year or so." This is deliberately a little vague, because it is not expected that anyone could remember exactly what they ate during exactly the past year. The idea is just to get a usual pattern -- their current diet at this point in their life. Some people raise the objection, "Oh, I can't even remember what I ate yesterday; how could anyone answer what they ate in the past year?" If participants have this concern, it's important to make clear to them that the idea is not to remember, but to think about their usual pattern of frequency. For example, they don't have to remember how many times they had eggs in the past year. Instead, what they can tell you with reasonable accuracy is, "Oh, I have eggs about twice a week."

For some items, people may indicate that they have changed their habits in the past year. In that case, ask "Do you expect that this is a lasting change?" If the new habit appears to be lasting and stable, they should report on the new pattern rather than the former pattern.

In all the examples given below for foods, you should not probe for information about any of the clarifications discussed here. These are provided as clarification for you, the interviewer, so that you will be able to answer questions if the participant asks.

Read the questions exactly as written. Do not re-word, or leave things out. But you may respond to questions, using the information provided here.

6.1 Q by Q -- Fruits

In this section, the number of times per month or week refers to number of days per month or week. For example, the participant eats bananas on about two days a week. Then, the portion size section provides the location where the participant can tell you how many pieces of that fruit they eat, on the days they eat them.

Seasonality: Among the fruits, all but one of the items refer to food intake year round. If any of these "year-round" foods are eaten more in one season than another, ask participant for their best estimate of a year-round average. "Raw peaches..." are "in season." It is essential to read the "in season," and participant should report the frequency with which that fruit is eaten when it is in season (refer to section 5.3 above for a detailed discussion) Do not probe for length of season.

Jams and jellies should not be counted as servings of fruit. Fruit in yogurt does not count as servings of fruit.

Bananas	All kinds, all sizes. The frequency section gets at "how <u>often</u> ," not how many bananas per week. Get number of days first; then in portion size get "How many" each time. If they seem to be answering bananas per week, clarify and first get 'how often', then under portion size get 'how many each time'. Be careful, for this item and all other items that come in units, that you do not double-count or triple-count: that is, be careful that they don't say "2 a week," (which you would record in the "2/wk" column), and then say '2' for how many each time. That would calculate out as four bananas a week instead of two.
Fresh apples or pears	All kinds, all sizes; includes pears, or Asian pears. Discourage participants from trying to do math, adding up separately their apples and their pears. An intuitive average is fine.
Oranges, tangerines, not including juice	All kinds, all sizes; includes tangerines, tangelos, mandarin oranges. (Orange juice is a later item.) If participant <u>only</u> uses oranges to make juice, tell them to wait and count that as orange juice. And then use the glasses for portion size. If they sometimes eat them as oranges and sometimes as juice, just get frequency of 'as oranges' in the fruit section, and then later get the 'as juice' in the juice section.
Grapefruit, not including juice	All kinds, all sizes.

Cantaloupe	The focus here is on cantaloupe. Other melons should be counted only if they are deep orange like cantaloupe. Do not include honeydew or other non-orange melons.
Raw peaches, apricots, nectarines, in season	Any type. Report frequency only for the few months when they are "in season."
Applesauce, fruit cocktail, canned pears	Frequency is average year-round frequency of consumption. Do not include canned peaches, apricots, plums, etc.
Canned, frozen or stewed peaches or apricots	Any type including dried. Frequency is average year-round frequency of consumption.
Any other fruit...	Any fruit, canned or fresh. Year-round frequency.

6.2 Q by Q -- Breakfast items, dairy

Eggs, including biscuit sandwiches and Egg McMuffins	Include real eggs when eaten as eggs, including scrambled, boiled, fried, or on sandwiches. Also, include deviled, or egg salad or quiche (which is mainly egg). Do not count eggs used in cooking, such as in cakes, custards, etc. Do not count Egg Beaters, egg substitutes, or if only egg whites are eaten. The main point is the cholesterol, so if they scramble, for example, one egg yolk and two egg whites, just count the number of yolks. See caution under "Bananas" above, about care in recording the answers to the "How often" and "How many" questions.
Bacon	Includes when eaten at any time, including BLT sandwiches, not just with breakfast.
Breakfast sausage, including sausage biscuits	This includes breakfast-type items, but not sandwich-type cold-cuts, not main-meal items like Italian or Polish sausage, and not hot-dog type sausages like German hot dogs. Turkey sausage may be included here. Sausage made from soy beans is <u>not</u> considered to be sausage.

**Pancakes,
waffles,
French toast**

With or without butter or syrup. Syrup will be added automatically.

**Cooked
cereals like
oatmeal,
cream of
wheat or grits**

This refers to all cooked cereals, including cream of wheat, cream of rice, and less common types like kasha, as well as those mentioned.

**Any kind of
cold cereal**

This is a general question about all kinds of cold cereals. After asking the question and receiving an answer, explain to the participant that the next three questions ask about specific types of cereals. It is not necessary to make the sum of the three types of specific cereals add up to this first general question. However, if they are substantially different, the interviewer should remind the participant of the first answer, and attempt to elicit a conclusion about each of the three kinds of cold cereals that does not substantially double-count the total. In the calculations, the three individual cereals will be used, rather than this general question.

**Fiber or bran
cereals**

This item may include any higher-fiber cereals, including the very-high-fiber cereals like All-Bran and the moderately high-fiber cereals like "Fruit-n-Fiber." **Any cereal with the words "bran" or "fiber" in their titles may be included here.** Note that the cereals should be counted even if they are eaten as a snack rather than a breakfast cereal, and regardless of whether they are eaten with milk.

**Product 19,
Just Right or
Total**

This item includes only these three cereals. These cereals contain 100% of the RDA (Recommended Dietary Allowance) for several nutrients.

**Other cold
cereals**

This item refers to all other cold cereals, like corn flakes, rice krispies, Special K, or Frosted Flakes, etc.

Milk on cereal Ask about milk on cereal only if cereal is eaten. Ask the question just like any other, "how often do you use...", if the participant eats cereal; do not just assume that the frequency will be the same as the frequency of cereal. (Some people eat cereal plain, as a snack.)

Frequency: For most people, this will be the number of days per week or month that they eat any kind of cereal with milk. Some participants may say "every time." Do not code this as 'every day'. Rather, look back at their cereal frequency and remind them of how often they said they eat cereal; then ask them, "So, about how often do you use milk on cereal, per week?"

Portion size: For this item, you do not mark any portion size.

Cottage cheese Include all varieties, regular or low-fat, farmer cheese or ricotta.

Other cheeses Include all types, regular or low-fat, hard cheese or soft cheese, natural or processed, including cream cheese. This refers specifically to cheese eaten as cheese. It should not include cheese eaten in lasagna, pizza, etc. Those foods will come later. For the nutrient calculations, a regular or low-fat item on the database will be selected for the calculations, depending on the participant's answer to the following question on use of regular or low-fat items.

When you eat cheese, ... "Cheese" here refers specifically to cheese by itself, not as part of pizza, lasagna, etc. The program will use the answer to this question to choose the fat content of the cheese whose frequency was reported above.

Yogurt, frozen yogurt Include all varieties, with or without fruit, regular or low-fat, sweetened or artificially sweetened. Do not code the fruit in yogurt separately as fruit.

When you eat yogurt ... The program will use the answer to this question to choose the fat content of the yogurt whose frequency was reported above.

6.3 Q by Q -- Vegetables

When starting the vegetable page, be sure to read the introductory sentence at the top, so that they know to include frozen, canned, etc. All vegetables consumed, whether fresh, frozen, canned or in stir-fry, should be included here if the amount equals at least

the small size wood block model. Vegetable soups and vegetable or vegetable-beef stew are separate items, and the vegetables from those items should not be reported separately under the particular vegetable. Small "incidental" amounts that may be included in salads or mixed dishes should not be reported separately under the particular vegetable, unless the amount is equal to at least a half cup. All vegetables must be answered in terms of the baggies (or occasionally bowls); do not let them answer in ounces.

French fries and fried potatoes

Include home or restaurant fries, and "home fries."

White potatoes not fried...

Include all forms of potatoes except fried. Do not include potatoes eaten in soups or stews, as those are captured elsewhere.

Sweet potatoes, yams

All types.

Rice, or dishes ...

This includes not only rice eaten by itself, but also as fried rice, Rice-a-roni, beans-n-rice, rice pudding, etc.

Stuffing or dressing

Bread or rice stuffing, or stovetop stuffing

Baked beans, chili with beans....

This includes all dried-type beans, regardless of whether they're mentioned here or not, such as navy beans, red beans, etc. Bean, lentil or split pea soups may be counted here.

Corn

Fresh, frozen or canned. As with year-round fruits, ask the participant to estimate a year-round average, if eaten more in season. Remember that people may eat corn on the cob when it is in season, but eat canned or frozen corn during the rest of the year. One ear of corn equals approximately a "B" or medium serving.

Green beans or green peas

Green beans refers to canned, frozen, fresh, or in salad bars. Green peas refers to canned, frozen, fresh, or in salad bars, but not to dried-type peas like black-eye peas, split peas.

Broccoli	Includes cooked or raw. Includes items from salads only if the amount comes to at least the size of a half cup, and then only the frequency that this vegetable itself is actually eaten, not just the frequency that salad may be eaten.
Carrots, or mixed vegetables containing carrots...	Includes cooked or raw. Include items from salads only if the amount comes to at least the size of a half cup, and then only the frequency that this vegetable itself is actually eaten, not just the frequency that salad may be eaten. Also includes carrots eaten in mixed dishes like beef stew. Carrots eaten in vegetable soup are captured elsewhere.
Spinach	Includes cooked or raw. Spinach salad should be recorded here, not under salad.
Collards, mustard greens, turnip greens	This refers specifically to the dark-green, strong-flavored greens. Beet greens, for example, may be counted here. However, lighter-green leafy vegetables such as celery tops should not be counted here.
Cole slaw, cabbage	Includes raw or cooked cabbage, including Chinese cabbage, and cole slaw whether homemade or from a restaurant.
Green salad	Includes all kinds of green salad that include some lettuce, whether mostly of iceberg lettuce or of other types of lettuce, and regardless of whether other vegetables are sometimes eaten in it. Spinach salad should be recorded under "spinach," and should not be double-counted here.
Raw tomatoes	Includes tomatoes eaten in alone or in salad <u>Does not include</u> tomato sauces, which are captured under 'spaghetti', etc. Does not include the tomatoes in tomato or vegetable soups, which are captured under that item.
Salad dressing	All types, creamy or not, including oil & vinegar. Program will assign a regular or low-fat type depending on participant's answer to the "How often low-fat" question that follows.
When you use salad dressing...	The program will use the answer to this question to choose the fat content of the salad dressing whose frequency was reported above.

Any other vegetable...	Includes any vegetable not already mentioned. This would include cooked vegetables and occasionally raw vegetables, such as green peppers and onions that are eaten alone, i.e., not as part of a green salad.
Vegetable soups...	Any type of vegetable soup that has a lot of carrots, or has a tomato base.
Other soups...	This is the catch-all for all other forms of soup, whether creamed or not, including "instant" soups.

6.4 Q by Q -- Meats and main dishes

Hamburgers, cheeseburgers, meat loaf...	All sizes, at home or in a restaurant. Does not include the ground beef used in spaghetti, lasagna or pizza. Only hamburgers, etc. made with beef are to be included here. Turkey burger should not be coded here, but should be included under "chicken or turkey, roasted or broiled." For portion size, use the "hamburger" realistic model.
Beef including steaks, ...	Do not include beef eaten as ground beef. For portion size, use the "sliced beef" realistic model.
Liver...	All forms. For portion size, use the "sliced beef" realistic model.
Pork...	Do not include pork-based lunch meats. For portion size, use the "sliced beef" realistic model.
When you eat beef...	The program will use the answer to this question to choose the fat content of the meats whose frequency was reported above.
Mixed dishes with meat...	Include any mixed dish with beef, pork, veal or lamb. Do not double-count beef stew reported earlier for the "carrots" item. Mixed dishes with chicken is a later item. Note that portion size here is obtained as A,B,C,D, bowls or blocks, not realistic model.
Fried chicken...	All parts of a chicken are included (wings, thighs, breast, etc.) provided they are fried. Include McNuggets, etc. For portion size, use the "chicken" realistic model.
Chicken or turkey...	Include turkey burgers here, but not chicken/turkey eaten as part of a mixed dish. For portion size, use the "chicken" realistic model.

When you eat chicken...	The program will use the answer to this question to choose the fat content of the chicken whose frequency was reported above.
Chicken stew...	Includes any mixed dish with chicken. For portion size, use A,B,C,D, bowls or blocks.
Shellfish...	All forms, including clams, mussels, squid, oysters. For portion size, use A,B,C,D.
Tuna...	All forms of tuna, light meat or dark, in oil or in water, straight or in a casserole. Portion size, however, refers to the amount of tuna, and should not include any noodles, etc., eaten with it. Portion size uses A,B,C,D.
Fried fish...	Home-fried or restaurant, fast food. All types of fish. For portion size, use the "halibut" realistic model.
Other fish...	All other fish, after excluding fried, tuna or shellfish. For portion size, use the "halibut" realistic model.
Hot dogs	All forms, including chicken/turkey.
Bologna...	Lunch meats, all types. Ham refers to slices as for sandwiches; ham eaten as a roast or as the entree for a main meal should be reported under "pork." Do not include small amounts eaten on pizza, etc.
When you eat ...	The program will use the answer to this question to choose the fat content of the lunch meats whose frequency was reported above.
Spaghetti... with tomato sauce	This item should include only those pasta dishes that are eaten with tomato sauce. It can include mixed pasta items such as raviolis. The defining characteristic is the tomato sauce.
Cheese dishes without tomato sauce...	This item should <u>not</u> include any pasta dishes that are eaten with tomato sauce. Therefore, you must be careful to correctly say " <u>without</u> tomato sauce," not "with." This includes only dishes that commonly have a fair amount of cheese, such as macaroni and cheese, certain Mexican dishes that have a lot of cheese, Welsh rarebit, etc. Incidental sprinkle cheese often used on spaghetti does not make it count as a cheese dish. Cheese sandwiches should be counted in the earlier 'cheese' item, where number of slices can be indicated.

Pizza... All forms, all sizes, all toppings.

6.5 Q by Q -- Breads, snacks, etc.

Point out the different frequency category flash card to the participant. For foods on this page, a response of "every day" always needs to be probed to determine whether the food is eaten once a day or more often. Then, it is important to phrase the serving size question as "How many each time." For example, if the participant answers that they eat bread twice a day, the portion size should refer to how many slices they eat on each of those times. Suppose they eat bread "twice a day," and have two slices each time; you would record "2+ per day" as their frequency, and "2" as their portion size. (If they are more comfortable telling you they eat four slices per day, it is okay to record "every day" and then "4." But it is important to be careful that you do not accidentally record "2+ per day" for frequency and "4" for portion, as that would give them eight slices per day rather than four.)

If the participant eats bread "twice per day," but has a different portion size each time, they may have difficulty coding their consumption correctly. The easiest way to handle may be for you to convert their frequency of consumption to "every day," and then code the portion size as the total number of pieces consumed each day. For example, if the participant eats two slices of bread for lunch and one slice of bread for dinner, you may code this as "Every day," and "3 slices."

Biscuits, muffins... Biscuits include homemade or from fast food places such as Kentucky Fried Chicken, McDonalds. Muffins include kinds such as bran muffins, blueberry muffins, etc., but do not include English muffins, which should be included under 'Rolls,...', below.

Rolls, Hamburger buns, English muffins, ... All types, all sizes. Note that these items come as two halves. Therefore, if they only eat 1/2 a bagel, etc., the portion size should be marked as "1/2." Only a whole bagel, English muffin, hamburger bun, etc., should be marked as "1."

White bread... White, French, Italian, etc., all forms. In reporting portion size, the response is in "slices."

Whole wheat... Includes whole wheat, rye, pumpernickel, or other dark breads.

Cornbread... Includes cornbread, corn muffins, corn tortillas, hush puppies.

Butter or margarine...	All forms, on bread or added to vegetables at the table. A "pat" is about one teaspoonful.
Mayonnaise...	Include all mayonnaise-type spreads.
Peanut butter	Other nut butters may also be included in this item.
Ketchup or salsa	All kinds of tomato-based condiments.
Gravy	Include meat gravies or packaged varieties.
Snacks, like potato chips...	These should be reported here even if participant reports eating only low-salt or low-fat varieties. Exclude items here only if participant eats <u>only air</u> -popped popcorn.
Peanuts, pecans...	Any nuts, including walnuts, etc., or seeds such as sunflower.
Crackers	Saltines, or any other crackers
Doughnuts, Danish pastry	This is intended to capture full-fat types of doughnuts and pastries. If they eat a low-fat kind of pastry such as Entenmann's coffee cake, they should report it in the next item.
Cakes, sweet rolls...	All kinds of cakes or coffee cakes, home-made or packaged, including snack cakes.
When you eat cake...	The program will use the answer to this question to choose the fat content of the cakes/pastries whose frequency was reported above. If participant usually eats low-fat cakes (such as Entenmann's) but eats regular-fat varieties of other foods in the item above, this question should be answered based on the food they eat most often.
Cookies	All kinds, all sizes. Since cookies can vary widely in size, the portion size is best recorded in terms of the wood blocks. They may push them into shapes to help them estimate.
When you eat cookies...	The program will use the answer to this question to choose the fat content of the cookies whose frequency was reported above.
Ice cream...	All forms including ice cream bars, fast-food milkshakes, etc.

When you eat ice cream...	The program will use the answer to this question to choose the fat content of the ice cream whose frequency was reported above. Again, this question should be answered based on the type of ice cream they eat most often.
Pumpkin pie...	Include pies or puddings made with pumpkin or sweet potato. However, do not double-count the frequency of sweet potato reported in an earlier item.
Any other pies...	All forms, fruit-filled or not. Include fast-food pies.
Pudding	All kinds, including canned, ready-to-eat, and those prepared from dry mix.
Chocolate candy, candy bars	Only chocolate-covered or chocolate-based candy and candy bars should be included here. The point is the chocolate, not just any candy.

6.6 Q by Q -- Beverages and Summary questions

On the beverages page, do read the introductory question, "How many glasses of the following beverages do you drink per day or per week?" **We want them to be sure that we are not asking about days per week, but glasses per day or week.**

Point out the different frequency category flash card to the participant, and that here we are asking about number of glasses per day, and the answer categories go up to 4 and 5+ glasses per day.

Important notice: On this beverage page, the items are to be reported in numbers of glasses or cups per day, not in days per week. That is, here we're not asking days per week, but number of glasses or cans per week. So if you ask 'beer', and the participant says '2-3 days a week', remind them that on this page we're asking about how many glasses or cans they drink per day or per week. They might drink beer three days a week, but have two cans each time. If they're not answering it right, we might give them only three cans a week, when in fact they drink six cans a week. This page is a little different from the other pages, like "Fruits," in that respect; here in the Beverage section the number per day is captured in the frequency section. Only the size of the glass or cup is captured in the portion size section. So we could miss some of the intake unless this is clarified. Thus, an answer to "Orange juice...?" that simply said "Every day" would be insufficient. You should probe for how many glasses per day, and record the answer as part of the "How often" section.

Certain responses in the frequency section are blanked out, because we judge them to be extremely improbable and would yield substantial overestimates of some nutrients. Remember that these answers are being applied to 365 days a year. Thus, we think it is very unlikely that anyone has orange juice four times a day, 365 days a year.

Orange juice or grapefruit juice Canned, frozen or fresh. Do not include fruit drinks, or any drink that is not 100% orange or grapefruit juice. (Sunny Delight is not 100% juice.)

When you drink orange juice... The program will use the answer to this question to choose the type of orange juice to use for the frequency of orange juice reported above.

Hi-C, Kool-Aid, added vitamin C Include any drinks, whether real fruit juice or not, if they contain added vitamin C. Most forms of Kool-Aid do now contain added vitamin C. Include Sunny Delight here.

Tomato or V8 juice Any tomato juice, including Clamato, etc.

Other fruit juices, ... Canned, bottled, frozen or fresh. Other 100% real fruit juices (not 'drinks') could be included here, such as lemonade.

Instant breakfast... Ensure... Include any meal supplement or replacement, such as Boost or Ensure; any dieting milkshake, such as Sego or Slim-Fast; or Instant Breakfast milkshakes like Carnation. Note here that portion size is not asked -- a standard portion size will be assumed.

Glasses of milk... This applies to glasses of milk, not to milk added to coffee or cereal. Be careful that participants do not double-count the milk they may have added to their Carnation Instant Breakfast.

When you drink... The program will use the answer here to choose the kind of milk to apply to the frequency of glasses of milk reported in the previous item. This answer applies to glasses of milk, not to milk added to coffee or cereal. If they drink more than one type of milk, ask them to choose the one they drink most often.

Regular soft drinks...	Any soft drink that is not artificially sweetened. Includes cola, ginger ale, pepper types, orange or grape soda, etc., or sugar-sweetened bottled water. If the participant buys large bottles of soft drink (such as the standard 64 oz. bottle) and then drinks it in cups or glasses, then the interviewer may suggest that the participant choose from the ABCD cup models. The interviewer should code an "A" in the "<1 can/bot," a "B" in the "<1 can/bot," a "C" in the "12 oz can/bot," and a "D" in the "16 oz can/bot."
Beer	Bottles, glasses, cans, or draft, all varieties. If participant drinks <u>non</u> alcoholic beer, do not include it in this response, but include it in the open-ended section at the end of the questionnaire. Portion size asks what size can or bottle they usually drink.
Wine...	All forms, including champagne, spritzers. If participant drinks <u>non</u> alcoholic wine, do not include it in this response, but include it in the open-ended section at the end of the questionnaire.
Liquor...	Include all forms, including whisky, scotch, gin, etc. Note that " <u>How many</u> glasses or drinks" is reported in the "how often" section. In the portion size section, participant should report the amount of alcohol (number of shots) used in each glass. Note here that portion size is not asked -- a standard portion size will be assumed.
Coffee...	Include caffeinated or decaffeinated, brewed or instant.
Tea...	Any form of regular tea or iced tea. Exclude herbal teas.
Cream, half and half...	This includes cream, half-and-half or creamer, but excludes milk. Includes liquid or powder varieties of creamer.
Milk in coffee or tea	Regardless of type of milk.
Sugar or honey	Refers to only real sugar or honey, not sugar substitutes.
Summary vegetable and fruit questions..."	<u>Show them the flash card F</u> , then read the first question: "About how many servings of vegetables do you eat, per day or per week, not counting salad or potatoes?"

**Servings of
vegetables,
fruit**

Here, we mean how many times it shows up on your plate during the day. So green beans with lunch and squash with dinner would be 2/day; green beans with lunch and green beans with dinner would be 2/day; nothing with lunch and both squash and green beans with dinner would be 2/day. It does not mean 'how many different kinds'; it does not refer to 'seconds'; and it excludes mainly-lettuce salads. (See below for more on salads.)

Acceptable answers to participant questions:

Q: "Do you mean different kinds of vegetables (fruits, cereals)?"

A: "**No, just how often you eat vegetables of any kind.**"

Q: "Should I count second helpings as two servings?"

A: "**No, this is just how often you eat vegetables of any kind.**"

Q: "Give me an example of how to count them up."

A: Fruits: "**If you usually have some fruit with breakfast and some fruit for a snack, that would be twice a day.**"

A: Vegetables: "**Green beans with lunch and squash with dinner: 2/day; green beans with lunch and green beans with dinner: 2/day; nothing with lunch and both squash and green beans with dinner: 2/day.**"

Q: "What if I have a big salad with lots of stuff in it?" The key is whether there is enough of any one vegetable that they would include it in their main food list answer for that vegetable. For example, suppose their salad sometimes includes 1/2 cup of broccoli; in the main food list, when you ask "Broccoli?" they would/should think of all times they have broccoli, including the quite substantial portion they have in big salads, and include that in their "Broccoli" answer.

A: **If they have 1/2 cup (size "B") of any single vegetable such as broccoli in the salad, yes, count that vegetable as a serving of vegetables in the "general question."**

**Frequency of
fat or oil in
cooking.**

Note that fat or oil use is in fry, stir fry, simmer or season. It does not include fat used in baking; does not include oil used on salad; and does not include butter/margarine used on bread.

"What kinds of fat...."

Ask this question only if participant's answer to the previous question on fat or oil was "once per week" or more often. Put some emphasis on "kinds" of fat, so the participant understand that you are asking a different question. Do not read "Mark only one or two." Do not read the response categories. Leave it open-ended, and then fill in the appropriate box to fit the participant's answer. If participant names only one, mark only one without further probing. If they name two, mark two. If they name more than two kinds of fats/oils, ask them which two they use most often.

If they state, in answer to this question, "I do not use it," go back and clarify their answer to the previous question, which was "How often do you use fat or oil to fry...?"

Safflower oil or peanut oil can be marked under "Corn oil, vegetable oil." "Crisco" refers to Crisco shortening. If participant specifies Crisco oil, mark it under "vegetable oil."

Sesame oil: If participant reports "sesame oil," ask if they use it in large quantities such as 1-2 tablespoons; if so, code as vegetable oil. If they only use a few drops for flavoring, do not code as oil at all.

"On the whole, how reliable do you think the participant's responses to the food frequency questions are?"

The last set of response options on the Food Frequency Questionnaire are to be chosen by the examiner. Please answer the question based on your judgement of the participant's responses to the food frequency questions.

7. Alert values/Follow-up/Reporting

BDDS will generate a participant report. These will be transmitted to the Coordinating Center who will place them on the clinics' servers where they can be printed and placed as part of the participant's report. The turnaround will be 6-8 weeks.

8. Quality Assurance

All dietary examiners will attend the initial training session before the beginning of the study. After having read the interviewer instructions, they will participate in demonstrations and role-playing. Each *lead dietary examiner* will conduct a taped

interview of a naive participant (not one of the other interviewers); the filled-in interview and tape will be reviewed by BDDS, and comments and corrections returned. A second set of interviews will then be completed by the lead dietary examiners, and reviewed by BDDS. Upon successful completion of the second interview, the lead dietary examiners will be certified.

Subsequent certification of interviewers will be conducted by the lead dietary examiners. Prospective interviewers will read and study the Food Questionnaire manual of Procedures. They will administer two practice interviews, tape the interviews, and deliver the tape and the filled-in questionnaire to their clinics' lead dietary examiners. The lead dietary examiners will listen, and send back corrections and comments. Following this, the interviewer will complete an additional interview, taped, and again deliver the tape and filled-in questionnaire to the lead dietary examiners. If the second set of tapes and filled-in questionnaires is satisfactory, the interviewer will be certified and will send in one taped interview per month along with a copy of the questionnaire to be checked by Amy Brewer at the Memphis Field Center. If it is not satisfactory, further comments will be returned by the lead dietary examiners, and the interviewer will not be certified to administer the Food Questionnaire until a satisfactory tape and questionnaire is obtained.

8.1 Training requirements

Interviewers will participate in the initial training session prior to the start of year 2. After Year 2 starts, additional interviewers can be trained by the lead dietary interviewer at each clinic. The lead interviewer will be designated at initial training. The interviewers require no special prior experience to perform this assessment.

Interviewer training includes:

- Read and study the manual
- Attend the Health ABC training session of techniques (or observe administration by a lead examiner at the clinic).
- Practice on two local naive volunteers
- Record two interviews with naive volunteers for evaluation by the clinic's lead dietary examiner following each one
- A discussion of problems and questions with the clinic's lead dietary examiner

8.2 Certification requirements

- Complete training requirements
- Have the second dietary interview certified as acceptable by the clinic's lead dietary examiner

8.2.1 On-going quality control

Interviews with participants will periodically be taped and reviewed for quality-control purposes. Interviews will be selected at random for taping. Early on in Year 2, conference calls may be held at intervals with BDDS, selected interviewers, the clinic's lead dietary interviewer, and the quality control coordinator. Any quality-control problems will be discussed at these sessions.

8.3 Quality assurance checklist

- Exam performed in quiet private area with a minimum of distractions
- Correct instructions are given
- Script is read verbatim in a clear speaking voice
- All items on the questionnaire are asked exactly as written
- Clarifications are given as specified in the training manual
- Portion sizes are asked only for foods consumed more frequently than 2-3 time per month
- The correct serving size model is selected for the food item
- Interviewer correctly selects serving size when the participant consumes either more or less than the modeled amount
- Correctly completes form
- Reviews the forms for completeness
- Knows questions commonly asked by participants and how to answer them
- Correctly identifies frequency of consumption when the participant does not answer in one of the pre-specified intake categories

9. Processing of Completed Questionnaires

Completed questionnaires will be scanned into the Health ABC data system at each field center.

9.1 Quality control check before scanning

- _ Check each booklet for missing data:
 - Food items with "How often" section not filled in. (It is not critical if some portion sizes are not filled in, and these need not be queried.)
- _ Make sure the entire questionnaire has been completed in black pen.
- _ Remove any inserted Comments pages