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Development of a Questionnaire to Assess the Dietary Behavior of Low-Income Populations

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This report was prepared by Mathematica Policy Research, Inc. under a contract with the Economic Research Service (ERS), U.S. Dept. of Agriculture (USDA). The views expressed are those of the authors and not necessarily those of ERS or USDA.

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ABSTRACT

This report describes the development of a short, standardized measure for assessment of dietary behaviors associated with dietary quality for use with the food assistance eligible and recipient populations across the United States. The intended result is a measure that is relatively simple and cost-effective to implement via a telephone survey approach. As such, it would be a feasible means of collecting sufficient data to generate state-level and other subnational estimates, as well as national estimates of dietary behaviors of individuals targeted by such efforts as SNAP (formerly Food Stamp) Nutrition Education. Using cognitive testing, a draft questionnaire was developed. Field testing led to a revised questionnaire that was understandable to the target audience, could be completed within 15-23 minutes, and yielded results that seemed reasonable and consistent. Further testing is needed to verify that it is an acceptable proxy for more detailed dietary assessment methods.

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ACKNOWLEDGMENTS

This report would not have been possible without the cooperation of Food Stamp Program recipients who participated in the cognitive and telephone interviews. We are grateful to the staff of the Food Stamp Program offices in Walterboro, South Carolina, and Los Angeles, California, for facilitating the cognitive interviews at their respective offices.

This work reflects the contributions of many people. In the early stages of the project, several researchers gave us helpful feedback based on a content review of our draft questionnaire: Jamie Dollahite, Cornell University; Marilyn Townsend, University of California at Davis; and Sharon Sugerman, Cancer Prevention and Nutrition Section, California Department of Health Services. We are grateful to Joanne Guthrie, Dawn Aldridge, and Carol Olander at USDA for their contributions and guidance throughout the project.

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EXECUTIVE SUMMARY

For more than a century, the U.S. Department of Agriculture has provided nutrition education information to the public. In recent decades, Federal nutrition education efforts have increased substantially, particularly nutrition education for low-income populations eligible for USDA food assistance programs. The Supplemental Nutrition Assistance Program or SNAP (formerly known as the Food Stamp Program) allows States the option of offering nutrition education (formerly called Food Stamp Nutrition Education, now called SNAP-Ed) to participants.

The program is funded as a Federal-State partnership. Unlike SNAP food benefits, which are completely covered by USDA, USDA reimburses States 50 percent of allowable SNAP-Ed costs. State participation in SNAP-Ed has grown dramatically in the past 15 years. In 1992, it operated in 7 States with Federal expenditures of $661,076; it now operates in all 50 States, 2 Territories and the District of Columbia, with total Federally-allocated funding reaching more than $315 million in 2008. The level of State participation varies (see Figure 1), with 2008 budgets ranging from less than $250,000 to more than $10 million in approved Federal funding. Although these budgets seem very large in comparison to those of most nutrition education programs, it must be remembered that SNAP serves a very large and diverse population—more than 28 million individuals in June, 2008. Given this large caseload, combined annual Federal and State spending on SNAP-ED in 2008 translated into less than $25 per program recipient.

Despite its expanded emphasis on nutrition education, there is continued concern that SNAP is more effective in meeting goals of reduction of hunger and income-associated food insecurity than it is in improving diet quality (U.S. OMB, 2006). For example, despite the added food purchasing power afforded by SNAP, participants do not eat more fruits and vegetables than income-eligible nonparticipants (Guthrie et al., 2007).

It would be useful to better understand the extent to which SNAP-Ed improves food choices of SNAP participants. However, no uniform national data on outcomes associated with SNAP-Ed are currently available. Major barriers to the collection of uniform national data include the flexible and varied nature of SNAP-Ed activities across states, and the cost of dietary data collection.

To operate SNAP-Ed, State SNAP (formerly Food Stamp Program) offices subcontract with one or more implementing agencies. More than half of these are with the Cooperative Extension Service of the State's land-grant university; other implementing agencies include State or territorial health departments and other public organizations. FNS provides guidance on the appropriate scope of SNAP-Ed and reviews State plans for consistency with guidance. Nutrition education messages must be consistent with the Federal Dietary Guidelines for Americans and USDA's MyPyramid. States are encouraged to target educational activities to women and children in participating or eligible SNAP households. Within these broad guidelines, States use a range of educational methods and materials, and provide education in varied locations—community centers, schools, grocery stores, etc. Some States employ social marketing approaches such as placing educational messages in media outlets popular with low-income audiences or on billboards or buses in low-income areas. This variation in educational

approaches allows States to tailor their programs to the needs and interests of their target audiences. However, this variation complicates evaluation.

If State-level data on dietary behavior were available, these State-level differences could provide rich opportunities for comparing the effectiveness of different educational approaches. However, accepted methods of collecting good dietary data are detailed, expensive, and time-consuming to collect. Because of cost, the high-quality dietary data collected by the National Health and Nutrition Examination Survey (NHANES), the Federal government's premier survey assessing the diet and health of the population, cannot be collected in a large enough sample to generate State-level estimates.

The objective of this project is to fill this gap by developing a standardized measure for assessment of dietary behaviors associated with dietary quality, suitable for use with the food assistance eligible and recipient populations across the United States. The desired measure would be one that is relatively simple and cost-effective to implement, such that it would be feasible to collect sufficient data to generate state-level, as well as national estimates, and to incorporate the existing measure into a range of existing studies and surveys, as has been done with the USDA Food Security Measure.

We defined a successful measurement instrument (questionnaire) as one that would have the following characteristics:

- The instrument should assess behaviors consistent with current dietary guidance. The instrument is intended to assess dietary behaviors that are consistent with the 2005 Dietary Guidelines and the MyPyramid Food Guidance System, covering such topics as intake of particular foods, amounts of food, and weight management. The instrument's indicators of nutrition knowledge also should reflect sound nutrition research.
- The instrument should be relatively short, ideally requiring no more than 15 minutes to be administered. This will increase the use and acceptability in a broad range of evaluation contexts, where the resources available for evaluation data collection are limited. It will also increase response rates.
- The instrument should be technically correct. Such issues as question flow and skip logic should be conducive to successful interviewing. The instrument should be applicable and understandable to a wide cross-section of the low-income population, as defined by such factors as ethnicity, urbanicity, and region of the country.
- Dietary knowledge and practices tend to be highly influenced by cultural orientation. Different groups in the population may routinely use different language or different words to refer to similar concepts. Ensuring that the final instrument is general enough to accommodate such differences is important.
- The method for administering the instrument should be flexible. Because telephone interviews require relatively fewer resources, they are often the data collection mode of choice in evaluation work. However, there may be some evaluation contexts where one-on-one in-person interviewing fits better into the overall evaluation plans. Furthermore, in the current context of nutrition education programs, many evaluations may take place in group settings, so the instrument should also be suitable for this approach.

Development of the Questionnaire

When ERS, in consultation with FNS, identified a priority need to improved evaluation measures for SNAP-Ed, both agencies agreed to build as much as possible on previous work, and to involve important stakeholders from the Federal and State agencies, as well as research and evaluation specialists. Table 1 provides a chronology of the activities that were taken as a result, leading up to the research described in this report.

To avoid duplication, a review of existing dietary measures was commissioned by ERS and FNS (McClelland et al., 2001). The review indicated that no suitable questionnaire exists for this purpose. Therefore, new methodological research needed to be undertaken to develop such a measure. A series of meetings with experts and stakeholders were held to guide the development process.

It was concluded that questions from existing measures could be adapted for use in the new measure. It was recommended that a measure be developed, but that it make use of existing questionnaires as sources of individual questions that could be adapted for use in the new measure. Following this advice, ERS commissioned a review of dietary behavior questions used in national surveys, as well as a search of the food assistance literature for relevant questions used specifically with low-income audiences. The results, published in a *Prototype Notebook* (Hartline-Grafton, et al., 2004) were used as source material in a follow-up expert workshop at which candidate questions for the proposed measure were identified.

Although this process identified useful source questions, experts who reviewed the Prototype Notebook noted that further testing would be necessary before any questions could be used in a new questionnaire. There were two major reasons for this decision. First, most questions had originally been used with a general population and might not be appropriate with a low-income population. Second, the questions needed to be adapted into a coherent and cohesive questionnaire, and methodological research would be needed to see how well the revised questions worked individually and as part of the new questionnaire. Finally, new dietary priorities identified by the 2005 edition of the Dietary Guidelines for Americans were not well represented in the source questions. Therefore additional questions would need to be developed and incorporated into methodological testing.

This report details the formative research process that followed these initial steps. Volume 1 describes the cognitive testing process that led to the development of a draft questionnaire. Volume II describes the field testing of the draft questionnaire and the analysis of field test findings that resulted in the final recommended questionnaire.

Conclusions

The draft questionnaire developed through this process appears to perform well along several dimensions. It includes questions considered by experts to assess the most important aspects of dietary behavior associated with Federal dietary guidance. Results of cognitive and field testing indicate it is understandable to a key target audience for SNAP-Ed and other Federal nutrition education efforts that target low-income households. Field test results demonstrate that a basic questionnaire can be administered within approximately 15 minutes, the target time length

identified as appropriate for the measure. Additional optional questions lengthened administration time to 23 minutes, but provide information that may be desired by many evaluators. The questionnaire worked well in a telephone survey context; how well it would perform as a pencil-and-paper questionnaire would require further assessment.

The key question that remains is how valid the measure is as an indicator of dietary quality. Analyses of field test findings are encouraging. Respondents gave answers to questions that were consistent and were related in a manner that seemed logical. However, nutritionists typically assess the validity of a new dietary measure by comparing results obtained with the new measure to those obtained with a more established measure, such as the 24-hour dietary recall data used in NHANES. Such an approach has been employed by previous researchers to compare results from other short questionnaires to nutrient intake levels or to Healthy Eating Index (HEI) scores calculated from dietary recall data (Murphy et al., 2001). This would be the logical next step in the development of our measure; unfortunately the cost of collecting the detailed 24-hour dietary recall data in a reasonable sample makes this a difficult step to undertake. Probably the most cost-effective method of obtaining validation data would be to add the new measure to a study already collecting detailed dietary data in a suitable study population.

If demonstrated to be valid, this short questionnaire could be used as an ongoing surveillance measure, either on its own or appended to existing surveys, as has been done with the USDA Food Security Measure. Use on an ongoing basis would enhance researchers and evaluators' ability to monitor changes in the behavior of the target population over time or with exposure to food assistance and nutrition information programs. Once adopted, the measure could also be used by States and other entities to generate measures that could be used to assess dietary improvement needs of the food assistance population, and assess the outcomes of nutrition education and information programs directed toward the food assistance population.

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McClelland JW, Keenan DP, Lewis J, Foerster S, Sugerman S, Mara P, Wu S, Lee S, Keller K, Hersey J, Lindquist C. Review of Evaluation Tools Used to Assess the Impact of Nutrition Education on Dietary Intake and Quality, Weight Management Practices, and Physical Activity of Low-Income Audiences. IN: Special Issue: Evaluation of Nutrition Education with Low-Income Families. *J Nutr Educ*. 2001;33(suppl 1):S001-58. Available at:

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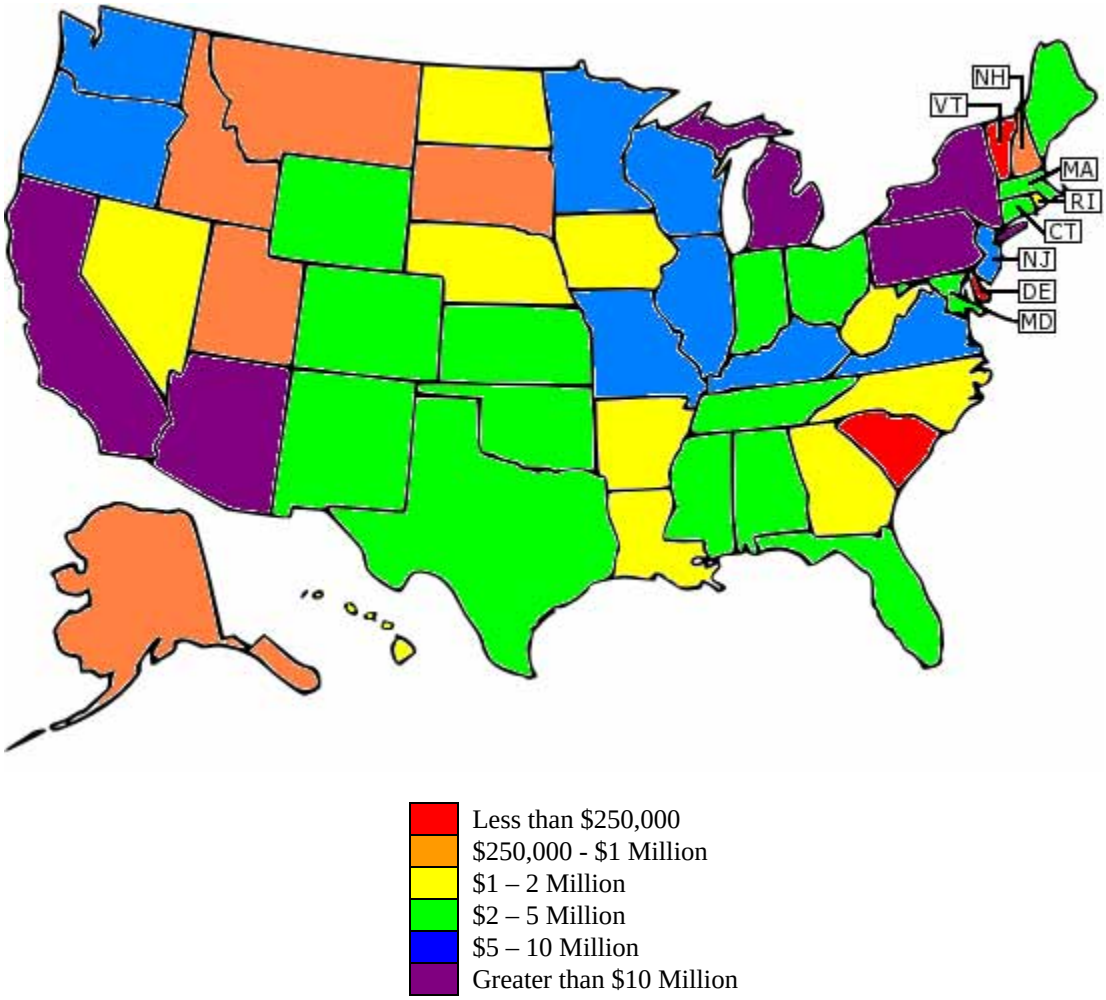
Table 1. Chronology of Developmental Process to Identify Items For Inclusion in a Questionnaire Assessing Dietary Behaviors Targeted by Food Stamp Nutrition Education

Activity	Purpose
McClelland JW, Keenan DP, Lewis J, Foerster S, Sugerman S, Mara P, Wu S, Lee S, Keller K, Hersey J, Lindquist C. Review of Evaluation Tools Used to Assess the Impact of Nutrition Education on Dietary Intake and Quality, Weight Management Practices, and Physical Activity of Low-Income Audiences. IN: Special Issue: Evaluation of Nutrition Education with Low-Income Families. *J Nutr Educ*. 2001;33(suppl 1):S001-58.	This article, commissioned by the USDA Economic Research Service and Food and Nutrition Service, was a comprehensive review of existing measures of dietary behaviors associated with dietary quality. It examined their potential use for measuring outcomes of Food Stamp Nutrition Education and failed to identify an existing measure that could be recommended for the purpose. It concluded that there existed a critical need for additional development and evaluation of dietary quality measurement tools suitable for use with the low-income population that is the target of FSNE efforts.
January 15-16, 2003 "Priorities and Planning Workshop - Future FSNEP Research and Evaluation Activities" A Workshop Hosted by the USDA Economic Research Service (ERS)	ERS convened this workshop to bring together Federal program managers and policy officials, State level managers, and nutrition research and evaluation specialists to begin to identify priority needs for improving FSNE evaluation and to plan a larger workshop to be held July 30-31, 2003 at the Annual Meeting of the Society for Nutrition Education.
July 30-31, 2003 "Advancing the Practice of Food Stamp Nutrition Education Evaluation: *Art and Science*" A Workshop Hosted by the Society for Nutrition Education with funding support from USDA's Economic Research Service (ERS)	This workshop was hosted by the Society for Nutrition Education, a professional organization that provides expert leadership in implementation and evaluation of nutrition education programs, with funding from ERS. A broad representation of Federal program managers and policy officials, State level managers, nutrition researchers and evaluation specialists, and policy evaluation specialists met to identify research and evaluation priorities and strategies for addressing them. The priority need most consistently emphasized by attendees was the development of a short set of survey questions to assess key behavioral outcomes of Food Stamp Nutrition Education (FSNE). Several individuals recommended that a commitment be made to the sustained research effort necessary to develop and validate an agreed-upon set of questions. This set of questions could serve as a "common core" that could be used for synthesis of evaluation activities. To develop the "common core" question set, it was recommended that researchers avoid reinventing the wheel—that is, start by examining existing behavioral measures and the research that has been done to establish their validity and reliability.

Hartline-Grafton H, Nyman R, Briefel R, Cohen R. Prototype Notebook: Short Questions on Dietary Intake, Knowledge, Attitudes and Behaviors. Submitted by Mathematica Policy Research, Inc. to US Department of Agriculture, Economic Research Service, Food and Rural Economics Division. E-FAN No. (04010) 171 pp, September 2004. Available at: http://www.ers.usda.gov/publications/efan04010/. Accessed October 12, 2004.	To follow up on the recommendations of the July, 2003 Workshop, ERS commissioned a review of existing questions used to assess dietary behaviors associated with diet quality outcomes emphasized by Food Stamp Nutrition Education. This review considered the evidence for the validity and reliability of each question, and its appropriateness for use with low-income audiences. A Prototype Notebook, providing detailed information on the questions considered to be the best candidates for inclusion in a short questionnaire was developed and submitted to ERS by the Contractor.
Developing Common Core Survey Questions to Assess Key Dietary Behavioral Outcomes of FSNE: *Launching the Research Process* April 15-16, 2004. A Workshop Hosted by the USDA Economic Research Service (ERS)	An expert group that included Federal and State level program officials and nutrition educators and researchers met at ERS to review the candidate questions in the Prototype Notebook developed for ERS, and to select from that group those that seemed most promising for inclusion in the proposed short measure. Although identifying potential questions, the expert group recommended further testing and refinement of the questions because most had been developed for use with the general population and might not be suitable for use with the low-income and food assistance populations. Moreover, to create a coherent questionnaire, questions culled from disparate original questionnaires might need to be adapted for coherence and cohesiveness. The resulting questionnaire would need to be tested to see if it was comprehensible to the target population and could be answered in the short time (ideally no more than 15 minutes) identified as desirable for such a questionnaire.

Figure 1. Federal Food Stamp Nutrition Education (FSNE) Funding 2008
U.S. Total = $ 315,465,082



Note: Washington, DC is in $2 – 5 Million group

Source: Prepared by Economic Research Service, USDA; using data from the Food and Nutrition Service (FNS) of USDA.

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Report on Cognitive Testing a Questionnaire on Dietary Behavior for Use in Low-Income Populations

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ABSTRACT

This report describes a cognitive testing study that was conducted as part of the development of a short dietary behavior questionnaire for use with the food assistance eligible and recipient populations across the United States. The goals of the project are described, along with background information on project activities leading up to the cognitive testing phase. Cognitive test methods, sample characteristics, and study results are presented. Based on study results, questionnaire changes are recommended, and recommendations for field testing the revised questionnaire are provided.

CONTENTS

I. BACKGROUND

The Economic Research Service (ERS) contracted with Mathematica Policy Research, Inc. (MPR) to develop a short, standard, and flexible dietary behavior questionnaire for use in surveillance activities with the Food Stamp Nutrition Education (FSNE) and other low-income populations. The questionnaire focuses on dietary intake and quality, with an emphasis on dietary behaviors and, to a lesser extent, knowledge and attitude questions that may be predictors of dietary behavior. This questionnaire is intended to take up to 15 minutes to administer by telephone, and contains a core set of questions and supplemental modules.

This report describes the methods, sample, and results of the cognitive testing conducted during May and June of 2006. Section I describes the background to the project, Section II describes the cognitive test methods, the characteristics of the sample of women who were interviewed, and the results. Section III provides recommendations to ERS regarding suggested changes to be made to the questionnaire prior to field-testing the instrument, and Section IV describes the next steps in the project.

The first stage of the project included a content review of a draft questionnaire that was developed by another contractor, in which MPR staff reviewed the questionnaire for technical correctness, readability, comprehension, face validity and content validity. This document describes the second stage of the project, cognitive testing of the instrument, in which MPR conducted 40 one-on-one, in-person cognitive interviews with adult female respondents participating in the Food Stamp Program in three regions of the country—Pennsylvania in the mid-Atlantic region, South Carolina in the southeastern region, and California in the western region. Individual cognitive interviews enabled researchers to closely observe respondents' reactions to questions, and uncover potential difficulties related to the different components of

the response process, including readability, an informal assessment of internal consistency, understandability, and comprehension. We were also able to assess the length of time for respondents to complete individual sections and the full questionnaire.

II. COGNITIVE TEST

A. METHODS

1. The Cognitive Interviewing Process

MPR developed and used two protocols for the cognitive interviewing questionnaires: one with a concurrent approach and one with a retrospective approach. Table II.1 provides an overview of the processes and mode of interviewing, as well as the evidence and analytic procedures we used to interpret the results. MPR interviewers employed the concurrent approach to solicit information from respondents while the information was still fresh in the respondent's mind. We used scripted probes as well as spontaneous probes to explore unanticipated responses. In addition to the 28 concurrent cognitive interviews, MPR conducted 12 cognitive interviews using the retrospective approach. Retrospective interviews were included because they simulate the actual questionnaire administration without interruption for think-aloud and probing techniques. This enabled staff to conduct behavior coding as well as assess the administration time of each section of the questionnaire.

We divided the concurrent questionnaire protocol into two subsections because of its length. Interviewers administered subsection A, which included questions on food intake and discretionary calories and salt, and subsection B, which included questions on shopping behaviors, attitudes, knowledge of food group recommendations, food availability, and weight control. For some of the concurrent questionnaires, socio-demographic questions were also included. For the cognitive interviews using the retrospective protocol, interviewers administered

the entire questionnaire including the two additional sections (physical activity and socio-demographics) in order to determine the administration time of the full interview.

TABLE II.1

COGNITIVE TEST PROCESS AND ANALYSIS

Stage in Questionnaire Development	Process and Interview Mode	Evidence and Analytic Procedures
Cognitive testing	One-on-one interviews ▪ n = 40 interviews across regions (n=34 respondents) ▪ 5 interviewers ▪ Think-aloud with concurrent probing (n=28 interviews); Retrospective probing (n=12 interviews) ▪ Verbal probing to estimate response bias ▪ Subgroup and geographic variability ▪ About one-third of respondents (n=34) are interviewed with an instrument that had one revision (12 of 34 respondents) ▪ About one-fifth of respondents (6 out of 34 respondents) were reinterviewed with a revised instrument One round of questionnaire revisions after each round of testing	Cross-interviewer comparisons of interviews (severity of problems, classifying and counting problems) One-on-one interviews: ▪ Readability ▪ Internal consistency ▪ Understandability, comprehension One-on-one behavioral coding of the number and types of problems on the retrospective 'think aloud' interviews (n=11)[1] Task timing (time to respond)

Cognitive interviewers audio taped the interviews to avoid the burden of taking notes while trying to listen and guide the discussion. MPR researchers used the tape-recorded interviews for behavior coding of the retrospective interviews during the analysis stage.

Using five interviewers added multiple perspectives to the question evaluation process to improve the questions in the survey instrument. In addition, multiple interviewers enabled two

[1] Interviewers conducted 12 cognitive interviews using the retrospective protocol, but one interview was not processed for behavioral coding because of a tape recorder malfunction.

rounds of cognitive testing to occur simultaneously, hence reducing the duration of the testing. One interviewer (Rhoda Cohen) conducted interviews in all waves and regions and served as the 'gold standard' for consistency in methodology over waves of interviews. This also facilitated direct observations of whether modifications to the instrument were indeed improving the administration of the questions.[2]

2. Participant Recruitment

In recruiting FSP participants, we worked with the FSP regional office contacts to collect lists that included the name, gender, age, race, ethnicity, household size, telephone number, and address of participants, ensuring that we had ample numbers and distributions of age and race/ethnicity.[3] MPR programmers compiled a database of this information for all three regions. The information on FSP participants, including the sample provided by each of the regional offices, was screened for eligibility criteria, including current receipt of FSP benefits, age range of 18 to 60 years old, and an available phone number. Telephone interviewers from MPR's Survey Operations Center contacted and recruited FSP participants through a purposeful screening selection process, screening to verify that the participant was the primary person in the household to conduct food shopping and to do the cooking. Respondents were provided with a $25 incentive as a means to reduce nonresponse.

[2] Because of the need for preparations in advance and the time required to obtain lists from the regional FSP office for California, only one wave of interviewing with one interviewer was conducted in the Western region. Since the Western region visit was completed last, we concluded that additional cognitive interviews would not glean new information.

[3] MPR drafted a letter template for regional project officers describing the purpose of the study and the information needed for each FSP participants. Regional project officers sent their respective state officials a personalized letter, and the state officials would then return an Excel file to the regional project officers with the relevant demographic and contact information of candidates for recruitment. The regional project officers then provided MPR with Excel files. It was often the case that race and ethnicity data fields were co-mingled.

3. Wave Approach to Cognitive Testing

The literature indicates that the first several interviews should reveal the majority of the problems related to question wording or questionnaire structure, and that conducting additional interviews before the questionnaire is revised no longer provides helpful information.[4] As such, MPR conducted the cognitive interviews in three "waves". For each wave, we evaluated the quality and usefulness of the questionnaire based on the completed interviews, and made revisions accordingly for use in subsequent waves. We interviewed English-speaking respondents in the East, South, and West regions to capture the responses and reactions of different subgroups of the population to the questions in the dietary behavior instrument. We obtained respondents' perception of the questions among different subgroups of the target population to ensure the final instrument's widespread applicability. Table II.2 illustrates the number of concurrent and retrospective cognitive interviews by region and wave. In sum, MPR conducted 40 one-on-one cognitive interviews to assure that potential problems related to the questionnaires were fully explored.

Interviewers conducted 20 cognitive interviews in the first wave, 12 interviews in the second wave, and 8 interviews in the third wave, for a total of 40 cognitive interviews. To achieve geographic diversity, MPR interviewers recruited 10 respondents in the mid-Atlantic region, 17 respondents in southeastern region, and 7 respondents in the western region. Six respondents were re-interviewed. We reinterviewed three respondents from the first wave (mid-Atlantic region) at the second wave of cognitive testing. We then reinterviewed three respondents from the second wave (southeastern region) at the third wave of cognitive testing.

[4] Willis, G. Cognitive Interviewing, A "How To" Guide. Presented as a part of a *Short Course on Reducing Survey Error through Research on the Cognitive and Decision Process in Surveys* at the Meeting of the American Statistical Association. Research Triangle Institute, 1999.

TABLE II.2

ONE-ON-ONE COGNITIVE INTERVIEWS BY REGION AND WAVE

	Region I: Mid-Atlantic Region (Interviewers A, B, and C)		Region II: Southeastern Region (Interviewers A, D and E)		Region III: Western Region (Interviewer A)		Total
Wave 1	New Respondent	Re-interview	New Respondent	Re-interview	New Respondent	Re-interview	
Think-Aloud With Concurrent Probing	5	0	9*	0			14
Retrospective Probing	3	0	3	0			6
REVIEW AND REVISE QUESTIONNAIRE AND MODULES							
Wave 2	New Respondent	Re-interview	New Respondent	Re-interview	New Respondent	Re-interview	Total
Think-Aloud With Concurrent Probing	0	3			5	0	8
Retrospective Probing	2	0			2	0	4
REVIEW AND REVISE QUESTIONNAIRE AND MODULES							
Wave 3	New Respondent	Re-interview	New Respondent	Re-interview	New Respondent	Re-interview	Total
Think-Aloud With Concurrent Probing			2	3			5
Retrospective Probing			3	0			3
Total	10	3	17	3	7	0	40

*One concurrent interview had two respondents.

After each wave of cognitive testing, MPR revised questions in the protocol to increase the usefulness and quality of questions as well as the ease and flow of administration. Most revisions were made between Wave 1 and Wave 2, and these included 1) wording clarifications to more accurately ask information on frequency or quantity, 2) expanded descriptions and changed word order within a question to better elicit the response, 3) excluding or including food examples to be more appropriate for the audience, and 4) changes to enhance protocol flow for the interviewer. Table II.3 displays each type of revision and two illustrative examples of changes made from Wave 1 to Wave 2. There were few revisions made between Wave 2 and Wave 3. One change was made for food frequency questions—"in the last week, did you eat…." was replaced with "in the last week, including the past seven days, did you eat…?" This change provided a more reliable time reference for respondents. Additionally, a few examples of foods commonly consumed by the Hispanic population from California, such as tacos and pinto beans, were added or mentioned first in a list of food examples.

B. SAMPLE CHARACTERISTICS

Interviewed respondents were English-speaking, female Food Stamp Program (FSP) recipients who were at least 18 years of age and had primary food purchase and preparation responsibilities for their households. To reflect the diversity of FSP recipients, we interviewed white, African American, and English-speaking Hispanic women from rural, urban, and suburban areas from the mid-Atlantic, southeastern, and western regions of the U.S.

Although the small sample of respondents limits any broad inferences based on the calculated sample statistics, we describe general socio-demographic characteristics such as age, race/ethnicity, and household income. Respondents' ranged in age from 24 to 58 years. Race/ethnicity varied by geographic region. Most respondents from the mid-Atlantic region were non-Hispanic white, most respondents from the southeastern region were African

American, and the majority of respondents from the western region were English-speaking Hispanics. Household incomes ranged from $200 to $2,500 monthly. Respondents had participated in the FSP for a duration ranging from one month to 11 years. Some respondents had taken nutrition classes, but none of the respondents reported taking nutrition classes as a part of the FSP. The majority of respondents were familiar with the terms, "Food Guide Pyramid" and "5-A-Day" but most respondents were not familiar with the term, "My Pyramid."

TABLE II.3

QUESTIONNAIRE REVISIONS AND EXAMPLES BETWEEN WAVE 1 AND WAVE 2

Revision	Example 1	Example 2
Wording clarifications to more accurately request information on frequency or quantity	"*How often*" was replaced with "*how many times*" for questions regarding frequency of consumption of particular food or food group.	"*How many grains*" was replaced with "***what portion** of grains should be whole grains?*
Expanded descriptions and changed word order within a question to better elicit the response	"*Please include canned, fresh, or frozen fruits*" was added when asking about consumption of fruit.	Beverage consumption was included when asking about food consumption behavior while watching TV. "*How often do you eat, snack, **or drink something** while watching TV or a movie?*"
Excluding or including types of food examples to be more appropriate for audience	***"**Lean cuts of meat like top round or sirloin**"*** was deleted because respondents do not usually purchase these types of lean meats.	The probe for types of fish consumed was changed to delete '*trout*" and add "*other kinds of fish*."
Changes to enhance protocol flow for the interviewer	Response categories for cups of milk, vegetables, fruits, meats, and grains were changed so that instead of the interviewer selecting from a range of cup categories, the interviewer wrote in the respondent's estimated number of cups or range of cups.	Two part questions were shortened to delete "*How about X food*?" and retain only "*Do you usually, sometimes, rarely, or never have X foods available at home?*"

C. RESULTS OF COGNITIVE TESTING AND BEHAVIORAL CODING

Cognitive testing using the retrospective and concurrent protocols provided information on interviewer and respondent behavior as well as information about the utility of each question in a "real-world" situation. Interviewer probing during the retrospective and concurrent cognitive interviews allowed interviewers to determine problems with particular terms or concepts, such as lack of respondent knowledge of the term "ounces." Conducting retrospective cognitive interviews also provided the opportunity for interviewers to time the total length of the interview and the length of each of the ten sections.

In addition, behavioral coding of 11 retrospective questionnaires enabled us to identify whether there were problematic questions in terms of their readability on the part of the interviewer and/or respondent, as well as respondents' comprehension of what was being asked of her. Behavioral coders systematically analyzed the verbal behavior of interviewers and respondents, examining the way questions were read, and noting any clarifications given by the interviewer, and probes that were used. [5]

Results of the cognitive testing and behavioral coding focused on the readability of questions and respondent comprehension of particular questions and sections of the questionnaire. Questionnaires included questions that targeted the eighth grade reading level, with the exception of two sections—physical activity and demographics—that were not cognitively tested. With complex variables such as dietary intake and dietary behavior, it was

[5] Behavior coders used the following scheme:

- [Interviewer] Misread Question- Major Changes; Misread Question- Minor Changes; Misread Response Categories; Skipped Question
- [Respondent] Request for Repeat of Question; Request for Clarification; Interrupts with Answer before Entire Question is Read; Expresses Uncertainty about Answer; Provides Uncodeable Answer
- No Problem

not possible to lower the reading level further. [In an earlier stage in the project, we designed the dietary behavior questions at an eighth grade reading level. The physical activity and demographics questions were at an eleventh grade reading level or lower.] Both readability and comprehension were assessed through cognitive testing and behavioral coding. Cognitive testing of readability and comprehension involved pooling the interviewer comments for all questions and probes across all interviews and capturing major themes. Behavioral codes to detect problems involved respondent requests for clarification and repeats of the question, as well as respondents' confidence in responding or responding with an answer that was uncodeable.

Below, we first provide a brief summary of cross-interviewer cognitive testing results based on interviewer probing from both retrospective and concurrent questionnaires as well as behavioral coding results from retrospective questionnaires. Second, we highlight questionnaire questions and sections that had problems with readability and comprehension, as evident from cognitive testing, behavioral coding, or both. And third, we present statistics regarding the length of administration time by section and for the full instrument.

1. Results of Cognitive Testing and Behavioral Coding

a. Cognitive testing

Interviewers' comments during cognitive testing provided us with a more in-depth understanding of respondents' ability to understand the questions. In synthesizing the interviewers' comments across retrospective and concurrent interviews, two major themes emerged that were pervasive throughout the questionnaire: 1) lack of respondent knowledge of terms or concepts, and 2) lack of consistency in understanding of terms across respondents, described below.

- Lack of respondent knowledge of terms or concepts

- Lack of respondent knowledge of basic concepts and terms was an issue across sections of the interview. For example, respondents appeared to be confident in their responses regarding the number of cups of fruits they should eat per day. Upon further probing, it was often the case that respondents did not have a clear idea of what a cup looked like in reference to common cup measures, such as glasses, Styrofoam cups, or mugs, nor did they accurately describe quantities of different kinds of foods equivalent to a cup.

- Lack of consistency in understanding of terms across respondents
  - Respondents interpreted questions about food consumption and behaviors based on their world of experience. Sometimes interviewers observed that respondents limited their consideration of the question to their own particular lifestyles. Conducting interviews with women from different geographic regions in the United States and different socioeconomic backgrounds led to a wide variation in how the respondent considered a question. For example, upon probing, respondents provided different definitions of what fast food restaurants they considered, and responses ranged from one particular fast-food chain restaurant to anything eaten away from home.

b. Behavioral Coding

Eleven retrospective cognitive interviews were subjected to behavioral coding, each with 73 questions that were cognitively tested. Across all questions from 11 questionnaires, behavioral coders tallied a total of 59 respondent-based codes.[6] Behavior codes ranged in type, and as a result, six questions became eligible for revision based on the criterion that problems identified in more than 20% of the interviews (or greater than 2 of 11) would be flagged. The comments were not confined to a specific respondent nor did they originate from a particular interviewer.

There are a relatively small number of issues identified by behavioral coding compared with the larger number of issues identified during cognitive testing. The limited number of behavior code results could be in part due to the evolution of the cognitive testing protocols over time. Wording, phrasing, and other modifications improved the respondents' comprehension of

[6] 59 codes are based on the respondents (13 interviewer codes; 59 respondent codes). Most interviewer-based codes involved misreading the question at a minor level, but this was the result of deliberate and experimental deviations from the script to test alternate wording to questions. We attribute problems with readability and comprehension to respondent-based behavior codes.

questions and the interviewer's ability to administer the questionnaire. In addition, there were only two interviewers who conducted the retrospective cognitive interviews, which could have also diminished the range of potential issues. We expect to learn more based on the behavioral coding of the larger field test of telephone interviews. The six most problematic questions and their respective behavioral codes are presented in Table III.1. Interestingly, the questions regarding fruit and vegetable intake (#4 in the Fruit Intake section and #53 in the Beliefs Concerning Food Group Consumption section) were the most problematic, despite the fact that fruit and vegetable intake questions have been subjected to greater testing and use than other questions, and they are based on the best questions from the literature. First wave and third wave questions are shown together to show how the questions were modified after experiencing problems with respondents' comprehension.

2. Problematic Sections and Questions Regarding Readability and Comprehension

Most problems with readability and comprehension were uncovered during cognitive testing and relatively fewer based on behavioral coding. In part, the smaller number of detected problems based on behavioral coding evidence could be due 11 questionnaires being reviewed for behavioral coding versus all retrospective and all concurrent questionnaires being reviewed for cognitive testing results. The most problematic questions determined by behavioral coding are located in three sections: Fruit Intake, Dairy and Other Calcium, and Beliefs Concerning Food Group Consumption sections (see Table II.1). Similarly, some of the predominant problems captured through cognitive testing were in the same sections; however, cognitive testing results also yielded problems with the sections, Grain Intake and Discretionary Calories and Salt.

TABLE III.1

QUESTIONS WITH IDENTIFIED PROBLEMS BASED ON BEHAVIORAL CODING

(1st wave question) 3rd wave question	Respondent-based Codes					
	Total number of codes	Request for Repeat of Question	Request for Clarification	Interrupts with Answer before Entire Question is Read	Expresses Uncertainty about Answer	Provides Uncodeable Answer
Section 1						
#3. (When you eat dessert how often do you have fruit?)						
When you eat dessert how often is it fruit?	3	1		1		1
#4. (In the last week, how often did you drink 100% fruit juices, not counting fruit flavored drinks?)						
In the last week including the last seven days, how many times did you drink 100% fruit juices, not counting fruit flavored drinks?	5	1	2		1	1
Section 2						
#14. When you use milk, how often is it 1% or fat-free milk? Would you say usually, sometimes, rarely, or never?	3		1			2
Section 3						
#33. (Now, I have a few questions about what you ate yesterday. How many cups of fruit did you eat yesterday? Please do not include fruit juice.)						
How many cups of canned, dried, fresh, or frozen fruit did you eat yesterday? Please do not include fruit juice.	3		1			2
Section 6						
#52. How about vegetables? How many cups of vegetables, including dark green, orange, starchy, and other vegetables, would you say a woman of your age and physical activity level should eat each day for good health?[7]	3			1		2
#53. How about fruit? How many cups of fruit should she eat each day for good health?	4		1	1		2

[7] Response categories were changed on questions 52 and 53 from the interviewer recording a range from selections provided, to recording the exact response.

In deciding which questions with readability and comprehension problems to address and which were more minor and could be resolved during the pilot test phase of the project, we considered the number and nature of the problems. Overall, we did not have sufficient evidence that the problems were clearly related to respondents' age, ethnicity, or income level. However, we encountered common issues that related to respondents' misunderstanding of question content and reference period. Our main conclusion was that some questions maintain a knowledge level that is too high for FSP recipients. Although the questions are readable and the respondents appear confident in their grasp of basic core concepts, cognitive testing helped us to re-evaluate how we define basic concepts and what terms needed further revision to simplify terms and concepts that are not well understood, such as cups and ounces and other units of measurement. In the case of questions on measuring knowledge related to portions, quantity, and units of measurement, we recommend dropping questions that require respondents to have a food model aid during phone interviews in the field-testing. Developing or revising an existing food model aid was not budgeted or planned for this project, but is an option that could be explored for the field-testing if ERS and the Food and Nutrition Service (FNS) determine that the questions on quantity or amounts are essential to retain.

3. Length of Administration Time by Section and for the Full Instrument

Table III.2 displays the mean, median, and range in lengths of administration time of each section and the proposed core instrument. The average time of the core instrument was 14.5 minutes. This included the demographics section (mean time = 3.1 min), which was not subjected to cognitive testing and is not expected to change, and the four core dietary sections (mean time = 10.8 min). Each of the topic modules had an average time ranging from 1.6 minutes (Beliefs Concerning Food Groups) to 2.2 minutes (Food Availability, Weight Control).

TABLE III.2

ADMINISTRATION TIMES FOR EACH SECTION OF RETROSPECTIVE DIETARY BEHAVIOR QUESTIONNAIRES[a, b]

Questionnaire Section	Topic	Number of questions	Mean time (minutes)	Median time (minutes)	Range in administration time (minutes)
		DIETARY INTAKE			
Section 1	Fruits and vegetables	11[c]	3.6	3.5	1 – 8
Section 2	Dairy and other calcium intake; Grain intake	7 calcium; 4 grain	2.8	3	2 – 4
Section 3	Meat and bean intake	15	3	3	1 – 5
Section 4	Discretionary calories and salt	7	1.7	1	1 – 4
Sections 1-4	Fruits, vegetables, dairy/calcium, grain, meats/beans, discretionary calories and salt	44	10.8	11	6 – 17
		ATTITUDES AND BEHAVIOR TOPIC MODULES AND DEMOGRAPHICS			
Section 5	Shopping behaviors; Attitudes	4 shopping; 6 attitudes	2.1	2	1 – 3
Section 6	Beliefs concerning food group consumptions	6	1.6	1.5	1 – 3
Section 7	Food availability	8	2.2	2	<1 – 6
Section 8	Weight control	5*	2.2	2	1 – 5
Section 9	Physical activity	6	1.7	2	<1 – 3
Section 10	Demographics	17*	3.1	3	2 – 7
		TOTALS			
Total sections	All topics	96	24.2[e]	23[e]	--
Sections 1-4; demographics	Core instrument	61	14.5[f]	15[f]	--

Notes: Some questions include multiple parts.

[a]Administration times were measured for 12 retrospective questionnaires, which were conducted without probing interruption.

[b]Administration times are based on 3 different versions of the protocol. 5 retrospective questionnaires conducted in Wave 1 had 99 questions, 4 retrospective questionnaires conducted in Wave 2 had 97 questions, and 3 retrospective questionnaires conducted in Wave 3 had 96 questions.

[c]Introductory question (#1) and study background were not cognitively tested and are not included in the total number of questions. However, they are included in interview time because interviewers timed this section including number 1.

[d]The following sections had available time measurements in fewer than 12 questionnaires: Section 1,9 (n=10), Section 2, 3, 4, 8 (n=11), Section 10 (n=8).

[e]Median and mean total time is based on 5 questionnaires that had 10 complete sections.

[f]Median and mean total time is based on 6 questionnaires that had 5 complete sections.

III. RECOMMENDATIONS

Based on the available evidence from our 40 cognitive tests and behavioral coding of a subset of 11 interviews, our judgment about the relative importance of content within time constraints, and the feedback of the gold standard interviewer who interviewed at all locations, we have developed specific suggestions for questions to retain, revise, and drop before field testing the instrument. Appendix A shows the most recent version of the questionnaire with red highlighting of 25 questions recommended for dropping.[8] Viewing the questionnaire in this way is helpful to indicate which sections were most problematic and to see which questions were retained within each section to ensure that an adequate number and range of topics is covered in the core instrument and each topic module.

To summarize, the instrument contained 96 questions, 73 of which were cognitively tested and behaviorally coded because the Physical Activity topic module and the Demographics core instrument section were not cognitively tested. Twenty-five out of 96 questions are recommended as 'drops' because they contained significant problems with respondents' understanding of question content and reference period and/or these questions were inconsistently defined by or understood by respondents, as determined primarily by the cognitive testing results. Thirteen out of the 25 recommended drops are in the core instrument (excluding Demographics), and 12 recommended drops are within the topic modules (excluding Physical Activity). All questions from the topic module, "Beliefs concerning food group consumptions" were suggested drops.

[8] Because major revisions have not been tested, we recommend moving these questions to the drop category. Defining terms and the further use of probes were considered changes would alter the reading level of the question and lengthen the time that the interviewer would need to read it. Additionally, we could not be sure that definitions and additional probes would resonate with the respondents.

No questions were selected for minor revisions because several minor revisions had been made during subsequent waves of the cognitive testing.

The instrument is intended to require 15 minutes or fewer to administer, counting both the core instrument and the supplemental topic modules. The target length of the core instrument (sections 1 through 4 and Demographics core module) is 10 minutes or less, and the target length of each of the four supplemental topic modules is about one minute each. The average time of the core instrument was 14.5 minutes, suggesting that it was necessary to reduce the time by 4.5 minutes or by roughly one-third. Because the demographics section (mean time = 3.1 min) was not subjected to cognitive testing and is not expected to change, the four dietary sections (mean time = 10.8 min) are the focus of recommendations for questions to be dropped. The topic modules had an average time ranging from 1.6 minutes (beliefs concerning food groups) to 2.2 minutes (Food Availability, Weight Control), suggesting that roughly 40% to 50% of each of these topic modules needs to be dropped to achieve an average length of one minute each.

The 48 questions that we suggested be retained were those in which there were very few or no comments from behavioral coders or cognitive interviewers, and/or were needed for the purposes of retaining a well-rounded set of questions within the section topic.

IV. NEXT STEPS

By incorporating the suggested drops, the new time estimate for the core instrument is 11 minutes. The four revised topic modules have estimated average times exceeding 1 minute only in some cases (Shopping Behaviors and Attitudes 1.1 minutes; Food Availability 2.2 minutes; Weight Control 1.5 minute; Physical Activity 1.7 minutes). Thus, if all modules were administered with the core, the entire instrument would be too long for the field-testing phase. Three options to consider are to:

- Reduce the coverage of core topics by dropping specific questions that were shown to work well. To meet the 10-minute target length of the core instrument and 15-minutes for the core plus supplemental modules, we recommend that 6 additional questions be dropped from sections 1 through 4 and two or three questions be dropped from the Food Availability or Weight Control topic modules. To implement this option, we would reexamine the original intent of the questions and consider using the Prototype Notebook's ranking of questions as recommended or not recommended,[9] and retaining questions that were part of a previously tested set of questions based on the published literature.

- Test the longer core instrument with different combinations of topic modules, rather than all of the topic modules. For example, we could test the 11-minute core instrument and the three topic modules, Shopping Behaviors and Attitudes (1.1 min), Food Availability (1 min) and Physical Activity (1.7 min). This option would help to retain questions that work well.

- Test a shorter core instrument with different combinations of topic modules. This option could lead to the collection of less information on key dietary intake topics and possibly limit our ability to identify redundant questions within a topic in the field test.

Any of these options may affect our ability to conduct all of the planned analyses for the field test since we would have reduced sample sizes of some modules. However, this may be worth consideration since field testing all of the core questions may be more advantageous than prematurely dropping questions and reducing the scope of the core questions without further information. We look forward to discussing these alternatives with ERS and FNS and making plans for the telephone field test.

[9] Hartline-Grafton H, Nyman R, Briefel R, Cohen R. *Prototype Notebook: Short Questions on Dietary Intake, Knowledge, Attitudes and Behaviors*. Final report for USDA/Economic Research Service. Washington, DC: Mathematica Policy Research, April 2004.

MPR Reference No.: 6191-400

MATHEMATICA
Policy Research, Inc.

Dietary Behavior Questionnaire

June 29, 2006

Paperwork Reduction Act Statement

A federal agency may not conduct or sponsor, and a person is not required to respond to this collection of information, unless it displays a currently valid OMB control number. Sample members' obligation to reply to this survey is voluntary. Public burden for this survey is estimated to average 15 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the necessary data, and completing and reviewing the collection of information.

Privacy Act Statement

In compliance with the Privacy Act of 1974, the following information is being provided to you: The contractor, Mathematica Policy Research, Inc., will use the information you provide to develop a dietary questionnaire for the U.S. Department of Agriculture. The information you provide will not affect your eligibility for any federal, state, or local government program or receipt of benefits from such programs. The information you provide will be kept confidential and the answers you give will not be identified as yours in any published material.

START TIME: |__|__|:|__|__| AM 1
PM 2

INTRODUCTION

1. My name is [NAME] and I'm from Mathematica Policy Research, Inc., a research company in Princeton, New Jersey. We are doing a study for the U.S. Department of Agriculture to learn more about the kinds of food people eat and how they decide what to eat.

IF COGNITIVE INTERVIEW (CONCURRENT), CONTINUE WITH: Right now we are starting to develop the survey. We want to make sure that people are able to answer and understand the questions.

We are more interested in what you are thinking about when answering the questions than what your answers are. It's possible that some of the questions I will ask may be difficult to understand. Please tell me about any problems you may have in answering the questions. Your comments will help us find specific problems so we can fix them.

Do you have any questions about what I just told you?

Now let's just do a quick warm-up exercise so you can try out one of things I'd like you to do during this interview called "thinking-aloud." As I said, it is important to let me know what goes through your mind as you answer these questions—that is, what you say to yourself as you decide on your answer. We find that if people say aloud everything they say to themselves silently, it helps us learn how they think about their answers. Do you understand what I want you to do?

Just to practice thinking aloud, I'm going to ask you one or two questions. I'd like you to tell me what you're thinking as you answer them.

1. How many windows are in your house or apartment? As you count up the windows, tell me what you are thinking about and seeing.

[IF THEY ARE UNABLE TO DO THIS, PROBE:] "did you start at the bottom floor and go to the top? Were you visualizing your house and looking at it from the outside?"

[IF RESPONDENT STILL HAS TROUBLE:]

2. Let's try one more quick question before we get started. How many times did you go to the doctor in the past year?

INTERVIEWER: RECORD RESPONDENT'S ABILITY TO THINK-ALOUD. NOTE ANY DIFFICULTIES R HAD WITH THIS TASK, ETC.:

During the actual interview, I will need you to tell me your thoughts like you did in these exercises. Sometimes as we go along, I'll also ask you a few other things about a question.

Your participation in this study is voluntary and will not affect any benefits or services you or your family receive now or in the future.

Before we begin, I'd like to read a statement that explains that everything you tell me is completely confidential. **(READ TEXT FROM CONFIDENTIALITY ACKNOWLEDGEMENT FORM.)**

Now, I'll sign the form that I read it to you and ask you to sign it as well. Let's begin.

First, I'd like to ask about different foods you eat.

FRUIT INTAKE

2. Please think about the last week including the past seven days, how many times did you eat canned, dried, fresh, or frozen fruit? Please do not include fruit juice.

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT FRUIT ..... n → **GO TO Q.4**
DON'T KNOW ..... d
REFUSED ..... r

3. When you eat dessert how often is it fruit?[1]

Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER 0
DON'T EAT DESSERT ..... n
DON'T KNOW ..... d
REFUSED ..... r

[1] Items suggested for removal from the final questionnaire are highlighted in red.

4. In the last week including the past seven days, how many times did you drink 100% fruit juices, not counting fruit flavored drinks?

PROBE (AS NEEDED): Fruit-flavored drinks include drinks like lemonade, Kool-Aid, Hi-C, or fruit punch.

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER DRINK 100% JUICE ..... n → **GO TO Q.6**
DON'T KNOW ..... d
REFUSED ..... r

5. Each time you drink 100% fruit juice, about how many cups do you drink?

|__|__|.|__| ENTER NUMBER OF CUPS

NEVER 0
DON'T KNOW ..... d
REFUSED ..... r

VEGETABLE INTAKE

6. In the last week, how many times did you eat vegetables of <u>any</u> kind? Please include canned, fresh, or frozen vegetables

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT VEGETABLES ..... n → **GO TO Q.12**
DON'T KNOW ..... d
REFUSED ..... r

7. In the last week, how many times did you eat baked, boiled, or mashed potatoes? Please do not include French fries.

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1

WEEK 2

NEVER EAT THESE KINDS OF POTATOES ..... n

DON'T KNOW ..... d

REFUSED ..... r

8. In the last week, how many times did you eat French fries or fried potatoes?

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1

WEEK 2

NEVER EAT FRENCH FRIES ..... n

DON'T KNOW ..... d

REFUSED ..... r

9a. In the last week, how many times did you eat dark green vegetables like broccoli, spinach, or greens?

PROBE: Dark green vegetables also include bok choy, collard, mustard, and turnip greens, dark green leafy lettuce, kale, mesclun, Romaine lettuce, and watercress.

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1

WEEK 2

NEVER EAT DARK GREEN VEGETABLES ..... n

DON'T KNOW ..... d

REFUSED ..... r

9b. In the last week, how many times did you eat orange vegetables like carrots or sweet potatoes?

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT ORANGE VEGETABLES ..... n
DON'T KNOW ..... d
REFUSED ..... r

10. How often do you put butter or margarine on your cooked vegetables? Would you say, usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER 4
DON'T KNOW ..... d
REFUSED ..... r

11. How often do you eat fruit or vegetables as snacks? Would you say, usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER 4
DON'T KNOW ..... d
REFUSED ..... r

TIME: |__|__|:|__|__| AM 1
PM 2

DAIRY AND OTHER CALCIUM INTAKE

12. In the last week, how many times did you drink plain, chocolate, or flavored milk as a beverage? Please do not include milk in coffee or tea.

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER USE MILK ..... n → **GO TO Q.14a**
DON'T KNOW ..... d
REFUSED ..... r

13. In the last week, how many times did you have milk on cereal?

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER USE MILK ON CEREAL ..... n
I DIDN'T EAT CEREAL ..... n
DON'T KNOW ..... d
REFUSED ..... r

14. When you use milk, how often is it 1% or fat-free milk?

Would you say, usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER 4
DON'T KNOW ..... d
REFUSED ..... r

15. In the last week, how many times did you eat yogurt? Do not include frozen yogurt.

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT YOGURT ..... n
DON'T KNOW ..... d
REFUSED ..... r

16. In the last week, how many times did you eat cheese? Also include cheese in sandwiches, casseroles, enchiladas, tacos, or on pizza?

PROBE (AS NEEDED): We're including cheese like American, cheddar, or Mozzarella or cottage cheese and Ricotta. This does not include Cheese Whiz or imitation cheese.

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT CHEESE ..... n
DON'T KNOW ..... d
REFUSED ..... r

17. In the last week, how many times did you eat non-dairy sources of calcium such as calcium-fortified orange juice, calcium-fortified soy milk, collard greens, turnip greens, or calcium-fortified cereals?

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT NON-DAIRY SOURCES OF CALCIUM ..... n
DON'T KNOW ..... d
REFUSED ..... r

17a. In the last week, how many times did you take calcium tablets, vitamins with calcium, or antacids?

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER TAKE THESE TABLETS ..... n
DON'T KNOW ..... d
REFUSED ..... r

GRAIN INTAKE

18. In the last week, how many times did you eat a whole grain, unsweetened cereal like Cheerios, Raisin Bran, or oatmeal?

PROBE (AS NEEDED): This also includes Shredded Wheat, All Bran, or other bran cereal.

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT WHOLE GRAIN CEREAL ..... n
DON'T KNOW ..... d
REFUSED ..... r

19. In the last week, how many times did you eat whole grain bread like whole wheat bread or whole grain rye bread?

PROBE (AS NEEDED): This includes whole grain tortillas and whole wheat pita bread.

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT WHOLE GRAIN BREAD ..... n
DON'T KNOW ..... d
REFUSED ..... r

20. In the last week, how many times did you eat brown rice or whole wheat pasta?

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT THESE FOODS ..... n
DON'T KNOW ..... d
REFUSED ..... r

21. How often do you use butter, margarine, regular cream cheese, or mayonnaise on your bread, rolls, tortillas, rice, or pasta? Would you say, usually, sometimes, rarely, or never?

PROBE (AS NEEDED): This includes sandwiches, muffins, bagels, biscuits, and pita bread.

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER 4
DON'T KNOW ..... d
REFUSED ..... r

TIME: |__|__|:|__|__| AM 1
PM 2

MEAT AND BEAN INTAKE

22. In the last week, how many times did you eat chicken or turkey?

INTERVIEWER NOTE: Include other types of poultry such as duck or geese.

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT CHICKEN OR TURKEY ..... n → **GO TO Q.25**
DON'T KNOW ..... d
REFUSED ..... r

23. When you eat chicken or turkey, how often do you eat it fried? Would you say usually, sometimes, rarely, or never?

INTERVIEWER NOTE: Include other types of poultry such as duck or geese.

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER 4
DON'T KNOW ..... d
REFUSED ..... r

24. When you eat chicken or turkey, how often do you eat it without the skin? Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER 4
DON'T KNOW ..... d
REFUSED ..... r

25. In the last week, how many times did you eat red meat such as beef, hamburger, or pork?

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT RED MEAT ..... n → **GO TO Q.29**
DON'T KNOW ..... d
REFUSED ..... r

26a. When buying meat, how often do you choose lean or extra lean hamburger?

Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER 4
DON'T KNOW ..... d
REFUSED ..... r

26b. Before eating, how often do you trim off the fat from beef or pork? Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER 4
DON'T KNOW ..... d
REFUSED ..... r

27. When cooking hamburger, how often do you drain off the fat? Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER 4
USE LEAN OR EXTRA LEAN HAMBURGER 5
DON'T USE HAMBURGER ..... n
DON'T KNOW ..... d
REFUSED ..... r

28. In the last week, how many times did you eat bologna, salami, ham, bacon, hot dogs, or other deli meats?

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT DELI MEAT ..... n
DON'T KNOW ..... d
REFUSED ..... r

29. In the last week, how many times did you eat fish? This includes canned, fresh, or frozen fish such as tuna, salmon, or catfish, and other kinds of fish.

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT FISH ..... n
DON'T KNOW ..... d
REFUSED ..... r

30. In the last week, how many times did you eat eggs?

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT EGGS ..... n
DON'T KNOW ..... d
REFUSED ..... r

31. In the last week, how many times did you eat peanut butter?

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT PEANUT BUTTER ..... n
DON'T KNOW ..... d
REFUSED ..... r

32. In the last week, how many times did you eat dry beans and peas such as kidney beans, pinto beans, split peas, lentils, or tofu?

PROBE (AS NEEDED): This also includes black beans, black-eyed peas, chickpeas, and soy beans. This also includes white beans and navy beans.

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT DRIED BEANS ..... n
DON'T KNOW ..... d
REFUSED ..... r

33. Now, I have a few questions about what you ate yesterday.

How many cups of canned, dried, fresh, or frozen fruit did you eat yesterday? Please do not include fruit juice.

|___|___|.|___| ENTER NUMBER OF CUPS

DON'T KNOW ..... d

REFUSED ..... r

34. How many cups of canned, fresh, or frozen vegetables other than potato did you eat yesterday?

|___|___|.|___| ENTER NUMBER OF CUPS

DON'T KNOW ..... d

REFUSED ..... r

35. How many cups of milk or yogurt did you have yesterday?

|___|___|.|___| ENTER NUMBER OF CUPS

DON'T KNOW ..... d

REFUSED ..... r

TIME: |__|__|:|__|__| AM 1
PM 2

DISCRETIONARY CALORIES AND SALT

36. In the last week, how many times did you drink fruit-flavored drinks like lemonade, Kool-Aid, Hi-C, fruit punch or sweetened iced tea? Please do not include diet drinks when thinking about your answer.

PROBE (AS NEEDED): That also includes Gatorade, Fruitopia, or Fruitworks.

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

NEVER 0
DAY 1
WEEK 2
DON'T KNOW ..... d
REFUSED ..... r

37. In the last week, how many times did you drink regular soda or soft drinks? Please do not include diet soda.

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

NEVER 0
DAY 1
WEEK 2
DON'T KNOW ..... d
REFUSED ..... r

38. In the last week, how many times did you eat snacks like potato chips, corn chips, cheese puffs, or pork rinds?

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT THESE KINDS OF SNACKS ..... n
DON'T KNOW ..... d
REFUSED ..... r

38a. In the last week, how many times did you eat snacks like salted crackers or pretzels?

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT THESE KINDS OF SNACKS ..... n
DON'T KNOW ..... d
REFUSED ..... r

39. How often do you add salt to your food at the table? Please do not include salt added in cooking or preparation.

Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER 4
DON'T KNOW ..... d
REFUSED ..... r

40. When you cook with fat, do you usually use oil or do you use solid fat like butter, margarine, shortening or lard?

PROBE (AS NEEDED): Oils include canola, corn, and olive oils.

SELECT ONLY ONE

OIL 1
SOLID FAT 2
USE BOTH EQUALLY 3
NEVER COOK WITH FAT OR OIL 4
DON'T KNOW ..... d
REFUSED ..... r

41. In the last week, how many times did you eat food from a fast food restaurant?

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1

WEEK 2

NEVER EAT FAST FOOD ..... n

DON'T KNOW ..... d

REFUSED ..... r

TIME: |__|__|:|__|__| AM 1
PM 2

SHOPPING BEHAVIORS

Now, a few questions about grocery shopping.

42. How often do you plan your meals before you shop for groceries?

Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER 4
DON'T KNOW ..... d
REFUSED ..... r

43. When you grocery shop, how often do you use a list?

Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER 4
DON'T KNOW ..... d
REFUSED ..... r

44. Now, think about buying a food for the first time. How often do you use the Nutrition Facts on the food label to choose foods?

Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER 4
DON'T KNOW ..... d
REFUSED ..... r

→ **GO TO Q.45**

44a. When you look at Nutrition Facts on the food label, which of the following do you check: calories, fat, cholesterol, sodium, fiber, sugar, protein, vitamins, serving size or something else?

SELECT ALL THAT APPLY

CALORIES 1
FAT 2
CHOLESTEROL 3
SODIUM 4
FIBER 5
SUGAR 6
PROTEIN 7
VITAMINS 8
SERVING SIZE 9
OTHER (SPECIFY) 10
_____
DON'T KNOW ..... d
REFUSED ..... r

ATTITUDES

I am to going read a series of statements. Tell me whether you agree or disagree with each one of them.

45. First statement . . . My overall diet is generally healthy.

Do you agree or disagree?

SELECT ONLY ONE

AGREE 1
DISAGREE 2
DON'T KNOW ..... d
REFUSED ..... r

46. (Next,) It costs too much for me to eat healthy foods.

READ AS NECESSARY: Do you agree or disagree?

SELECT ONLY ONE

AGREE 1
DISAGREE 2
DON'T KNOW ..... d
REFUSED ..... r

47. I'm too busy to take the time to prepare healthy foods.

READ AS NECESSARY: Do you agree or disagree?

SELECT ONLY ONE

AGREE 1
DISAGREE 2
DON'T KNOW ..... d
REFUSED ..... r

48. I don't think healthy foods taste good.

READ AS NECESSARY: Do you agree or disagree?

SELECT ONLY ONE

AGREE 1
DISAGREE 2
DON'T KNOW ..... d
REFUSED ..... r

49. People in my family don't think healthy foods taste good.

READ AS NECESSARY: Do you agree or disagree?

SELECT ONLY ONE

AGREE 1
DISAGREE 2
DON'T KNOW ..... d
REFUSED ..... r

50. Some people are born to be fat, some thin; there is not much you can do to change this.

READ AS NECESSARY: Do you agree or disagree?

SELECT ONLY ONE

AGREE	1
DISAGREE	2
DON'T KNOW	d
REFUSED	r

TIME: |__|__|:|__|__| AM..... 1

PM..... 2

BELIEFS CONCERNING FOOD GROUP CONSUMPTIONS

Let's talk about the amounts from different food groups that you think a person like you should eat each day.

51. How many cups of milk should a woman of your age and physical activity level have each day for good health?

|___|___| CUPS **OR** FROM |___|___| TO |___|___| CUPS

DON'T KNOW ..... d

REFUSED ..... r

52. How about "vegetables"? How many cups of vegetables, including dark green, orange, starchy, and other vegetables, would you say a woman of your age and physical activity level should eat each day for good health?

|___|___| CUPS **OR** FROM |___|___| TO |___|___| CUPS

DON'T KNOW ..... d

REFUSED ..... r

53. How about "fruit"? How many cups of fruit should she eat each day for good health?

PROBE: We're referring to a woman of your age and physical activity level.

|___|___| CUPS **OR** FROM |___|___| TO |___|___| CUPS

DON'T KNOW ..... d

REFUSED ..... r

54. How about "meat and beans?" How many ounces of meat or beans should she eat each day for good health?

PROBE: We're referring to a woman of your age and physical activity level.

|___|___| OUNCES **OR** FROM |___|___| TO |___|___| OUNCES

DON'T KNOW ..... d

REFUSED ..... r

55. How many ounces of grains, including both whole grains and refined grains should she eat each day for good health?

|___|___| OUNCES **OR** FROM |___|___| TO |___|___| OUNCES

DON'T KNOW ..... d

REFUSED ..... r

56. What portion of the grains should be whole grains? Would you say . . .

SELECT ONLY ONE

A tenth, ... 1

A quarter, ... 2

A third, ... 3

A half, or 4

More than half? 5

DON'T KNOW ..... d

REFUSED ..... r

TIME: |__|__|:|__|__| AM 1
PM 2

FOOD AVAILABILITY

Let's change the subject and talk about the kinds of food you have available at home.

57. Do you usually, sometimes, rarely, or never have fruit available at home? Please include canned, dried, fresh, and frozen fruit.

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER 4
DON'T KNOW .....d
REFUSED .....r

58. How about dark green vegetables such as broccoli, spinach, or greens? Please include canned, fresh, and frozen vegetables.

Do you usually, sometimes, rarely, or never have dark green vegetables available at home?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER 4
DON'T KNOW .....d
REFUSED .....r

59. Do you usually, sometimes, rarely, or never have orange vegetables such as carrots or sweet potatoes available at home?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER 4
DON'T KNOW ..... d
REFUSED ..... r

60. Do you usually, sometimes, rarely, or never have salty snacks such as potato chips available at home?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER 4
DON'T KNOW ..... d
REFUSED ..... r

61. Do you usually, sometimes, rarely, or never have candy available at home?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER 4
DON'T KNOW ..... d
REFUSED ..... r

62. Do you usually, sometimes, rarely, or never have 1% fat or fat-free milk available at home?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER 4
DON'T KNOW ..... d
REFUSED ..... r

63. Do you usually, sometimes, rarely, or never have soft drinks, fruit-flavored drinks, or fruit punch available at home?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER 4
DON'T KNOW ..... d
REFUSED ..... r

64. Do you usually, sometimes, rarely, or never have whole wheat bread available at home?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER 4
DON'T KNOW ..... d
REFUSED ..... r

TIME: |__|__|:|__|__| AM.....1

PM.....2

WEIGHT CONTROL

Let's change the subject.

65. During the past 12 months, have you changed anything in your diet to be more healthy?

YES 1

NO 0

DON'T KNOW .....d

REFUSED .....r

66. During the past 12 months, have you done anything to lose weight or keep from gaining weight?

YES 1

NO 0

DON'T KNOW .....d

REFUSED .....r

IF YES TO EITHER Q65, Q66, OR BOTH, GO TO Q67. OTHERWISE GO TO Q68.

67. **INTERVIEWER: USE THIS VERSION FOR EVERY OTHER RESPONDENT.**

What have you changed or done to lose weight or keep from gaining weight?

INTERVIEWER: RECORD VERBATIM

PROBE: Anything else?

67. (Alt) **INTERVIEWER: USE THIS VERSION FOR EVERY OTHER RESPONDENT.**

What have you changed or done to lose weight or keep from gaining weight?

	YES	NO	DON'T KNOW	REFUSED
a. Eat less food	1	0	d	r
b. Eat fewer calories	1	0	d	r
c. Use artificial sweeteners	1	0	d	r
d. Eat less fat	1	0	d	r
e. Eat less carbohydrate	1	0	d	r
f. Reduce salt intake	1	0	d	r
g. Increase fruits and vegetables	1	0	d	r
h. Exercise	1	0	d	r
i. Skip meals	1	0	d	r
j. Give up certain foods	1	0	d	r
k. Stop snacking	1	0	d	r
l. Give up desserts	1	0	d	r
m. Don't eat in the evening	1	0	d	r
n. Join a weight loss program	1	0	d	r
PROBE (AS NEEDED): These programs include Weight Watchers and Jenny Craig.				

68. How often do you eat, snack, or drink something while watching TV or a movie?

Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER 4
DON'T KNOW ..... d
REFUSED ..... r

69. In the last week, how many times did you eat breakfast or a meal within two hours after you woke up?

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1

WEEK 2

NEVER EAT MEAL AFTER WAKENING ..... n

DON'T KNOW ..... d

REFUSED ..... r

TIME: |__|__|:|__|__| AM.....1

PM.....2

PHYSICAL ACTIVITY

Now, I'd like to ask a few questions about physical activity.

We are interested in two types of physical activity—vigorous and moderate. Vigorous activities cause large increases in breathing or heart rate while moderate activities cause small increases in breathing or heart rate.

70. Now, think about moderate activities such as brisk walking, bicycling, vacuuming, gardening, or anything else that causes some increase in breathing or heart rate. Do you do moderate activities for at least 10 minutes at a time?

YES 1
NO 0
DON'T KNOW .....d → **GO TO Q.73**
REFUSED .....r

71. How many days per week do you do these moderate activities for at least 10 minutes?

|__|__| DAYS PER WEEK

DON'T KNOW .....d
REFUSED .....r

72. On days when you do moderate activities for at least 10 minutes at a time, how much total time per day do you spend doing these activities?

|__|__| HOURS

|__|__| MINUTES

DON'T KNOW .....d
REFUSED .....r

73. Now think about vigorous activities, such as running, aerobics, heavy yard work, or anything else that causes large increases in breathing or heart rate. Do you do vigorous activities for at least 10 minutes at a time?

YES 1
NO 0
DON'T KNOW ..... d → **GO TO Q.76**
REFUSED ..... r

74. How many days per week do you do these vigorous activities for at least 10 minutes at a time?

|__|__| DAYS PER WEEK

DON'T KNOW ..... d
REFUSED ..... r

75. On days when you do vigorous activities for at least 10 minutes at a time, how much total time per day do you spend doing these activities?

|__|__| HOURS

|__|__| MINUTES

DON'T KNOW ..... d
REFUSED ..... r

TIME: |__|__|:|__|__| AM.....1

PM.....2

DEMOGRAPHICS

We're almost finished. I just have a few more questions.

76. How tall are you without shoes?

|__|__| ENTER NUMBER OF FEET

AND

|__|__| ENTER NUMBER OF INCHES

DON'T KNOW .....d

REFUSED .....r

77. How much do you weigh without clothes or shoes?

|__|__|__| ENTER NUMBER OF POUNDS

DON'T KNOW .....d

REFUSED .....r

78. What is your age?

PROBE (AS NEEDED): What is your birthdate?

|__|__| YEARS OLD

|__|__| / |__|__| / |__|__|__|__|
MONTH DAY YEAR

79. **CODE WITHOUT ASKING (ASK ONLY IF NOT OBVIOUS):**
Are you male or female?

MALE.....1

FEMALE 2

DON'T KNOW .....d

REFUSED .....r

80. Would you say your own health is excellent, very good, good, fair or poor?

EXCELLENT.....1
VERY GOOD.....2
GOOD.....3
FAIR 4
POOR.....5
DON'T KNOW .....d
REFUSED .....r

81. Do you consider yourself to be of Hispanic origin?

YES 1
NO 0
DON'T KNOW .....d
REFUSED .....r

82. Which of the following best describes your racial background? Is it White, Black or African American, Asian, American Indian or Alaska Native, or Native Hawaiian or other Pacific Islander?

NOTE: IF RESPONDENT ANSWERS HISPANIC (OR SPANISH), ASK:
Are you White Hispanic or Black Hispanic?

NOTE: IF RESPONDENT ANSWERS MIXED OR MULTIPLE RACES, ASK:
"Which ones" AND CIRCLE ALL THAT APPLY.

CIRCLE ALL THAT APPLY

WHITE.....1
BLACK OR AFRICAN AMERICAN.....2
ASIAN.....3
AMERICAN INDIAN OR ALASKA NATIVE.....4
NATIVE HAWAIIAN OR
PACIFIC ISLANDER 5
OTHER (SPECIFY) 6

_____

DON'T KNOW .....d
REFUSED .....r

83. What was your total household income last month, before taxes? Please include all types of income received by all household members from jobs, public assistance, interest, or any other sources. An estimate is fine.

$ |__|,|__|__|__| LAST MONTH → **GO TO Q.85**

NONE ..... 0 → **GO TO Q.85**
DON'T KNOW ..... d
REFUSED ..... r

84. Please stop me when I reach your household's total income for last month. Was it . . .

Less than $500, ... 1
$500 to $999, ... 2
$1,000 to $1,499, ... 3
$1,500 to $1,999, ... 4
$2,000 to $2,499, ... 5
$2,500 to $2,999, ... 6
$3,000 or more? 7
DON'T KNOW ..... d
REFUSED ..... r

85. I just have a few more questions. You've been very patient and very helpful.

a. How long have you been on the Food Stamp Program?

|__|__| YEARS |__|__| MONTHS

Other (SPECIFY) 33

_____

b. Have you taken any nutrition classes?

YES 1
NO 0
DON'T KNOW ..... d

→ **GO TO Q.85e**

c. Were these classes part of the Food Stamp Program, WIC, or something else?	d. How long ago did you take these classes?
FOOD STAMP PROGRAM ..... 1 WIC..... 2 OTHER (SPECIFY) ..... 3 _____	|__|__| YEARS |__|__| MONTHS |__|__| YEARS |__|__| MONTHS |__|__| YEARS |__|__| MONTHS

e. Are you familiar with the term . . .

	YES	NO	DON'T KNOW
1. Food Guide Pyramid	1	0	d
2. 5-a-Day	1	0	d
3. My Pyramid	1	0	d

END. That completes the interview. Thank you so much for your time and helping us design this study.

(**RETROSPECTIVE COGNITIVE INTERVIEW ONLY:** Now, I'd like to ask your opinion of some of the questions.)

END OF INTERVIEW:

TIME: |__|__|:|__|__| AM 1
PM 2

MATHEMATICA
Policy Research, Inc.

Final Report on Field Testing a Questionnaire on Dietary Behavior for Use in Low-Income Populations

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ABSTRACT

This report describes the field test of a short dietary behavior questionnaire for use with food assistance eligible and recipient individuals. The test was conducted using a draft questionnaire previously developed via expert review of content and cognitive testing to assure that it was understandable to the target population. Replicating telephone survey methods, investigators completed 453 telephone interviews with current or recent Food Stamp (now SNAP) program recipients in four geographic regions of the United States. A final questionnaire was developed that was understandable to the target audience, and took 15-23 minutes to complete. While responses to study questions seemed reasonable and consistent, further testing is needed to verify that the questionnaire is an acceptable proxy for more detailed dietary assessment methods.

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Appendices

I. OVERVIEW

To help the Economic Research Service (ERS) of the U.S. Department of Agriculture (USDA) develop a standard, yet flexible, dietary behavior data collection tool for measuring the outcomes of nutrition education efforts, Mathematica Policy Research, Inc. (MPR) has reviewed and revised a draft questionnaire developed by Abt Associates. The questionnaire focuses on dietary intake and quality, with an emphasis on dietary behaviors and, to a lesser extent, knowledge and attitude questions that may be predictors of dietary behavior. The core set of dietary intake questions is intended to take up to 15 minutes to administer by telephone. Supplemental modules on food availability, shopping behaviors, attitudes, weight control, and physical activity can take up to one minute each and may be added to the core, depending on data needs for surveillance or research.

MPR prepared plans for the cognitive testing and field testing in an earlier document (Cohen 2006). Since then, MPR has conducted the cognitive testing and summarized the results before making final plans for the field test (Cabili and Cohen 2006). This report describes the methods, sample characteristics, and results of the field testing conducted during August and September 2006. Section II describes the project background, and Section III describes the field test methods, the characteristics of the sample of women who were interviewed, and the results. Section IV provides recommendations to ERS regarding suggested changes to be made to the final instrument.

II. BACKGROUND

The overall goal of this project is to develop a questionnaire that can obtain information needed to assess respondents' adherence to the *Dietary Guidelines for Americans* and that will perform satisfactorily for white, African American, and Hispanic English-speaking women in the Food Stamp Program (FSP) who (1) are between ages 18 and 60, (2) are currently receiving food stamps, and (3) have primary food purchase and preparation responsibilities in their household. The first stage of the project included a content review of a draft questionnaire.[1] In that first stage, MPR staff reviewed the questionnaire for technical correctness, readability, comprehension, face validity, and content validity. The second stage of the project included cognitive testing of the instrument, in which MPR conducted 40 one-on-one, in-person cognitive interviews with adult female respondents participating in the FSP in three regions of the country (East, South, and West). Building on the findings from the cognitive interviews, the field testing completed the third and final stage of the project.

The field test's primary purpose was to assess the administration and overall performance of the draft instrument and to refine a questionnaire that would perform satisfactorily in low-income populations. Telephone interviews were conducted in four geographic regions, and a subsample of these interviews from each region was subjected to behavioral coding.[2] The field testing provided an assessment of how the survey instrument works in "real-world" situations, including:

[1] Abt Associates assembled the draft questionnaire based on an inventory of recommended survey questions compiled by MPR (Hartline-Grafton et al. 2004).

[2] Behavioral coding provides a systematic analysis of the interactions of interviewers and respondents by examining the way questions were read, noting any probes used or clarifications given by the interviewer, and noting questions or comments made by the respondent.

- The ease with which interviewers are able to administer the instrument
- The ease with which respondents are able to respond to survey questions
- The clarity and accuracy of the survey instructions
- The internal consistency of responses to survey questions
- The level of redundancy within topical modules
- The overall performance characteristics of individual survey questions and sets of questions within a module
- The time to administer the full instrument and its sections

Field testing results provided additional evidence about questions that (1) perform well (from the perspective of both interviewers and respondents), stay within time limits, and should be retained; (2) perform well but are redundant with other questions and therefore could be dropped to meet time limitations; and (3) perform poorly and are candidates for further testing (if they address a critical topic) or candidates to be dropped from the final instrument. Results were also used to identify which questions should appropriately remain in the core instrument and which in supplemental modules, keeping in mind that the final core instrument should take no more than 15 minutes to administer (including the introduction and Acknowledgement of Confidentiality statement).

III. FIELD TEST

A. METHODS

MPR interviewers completed 453 telephone interviews with current or recent FSP recipients in four geographic regions of the United States. Sixty-two interviews were audio-taped for behavioral coding of interviewer and respondent behaviors. Table III.1 displays the number of completed interviews in each of the four regions.

TABLE III.1

NUMBER OF COMPLETED INTERVIEWS, BY REGION

	Northeast (Pennsylvania)	South (South Carolina)	Midwest (Wisconsin)	West (Arizona)	Total
Telephone Interviews	111	124	110	108	453
Behavioral Coding	17	15	15	15	62

All interviews were conducted at MPR's Survey Operations Center in New Jersey over a five-week period. Supervisors monitored interviewers during the field test to ensure that all procedures were being followed. To minimize nonresponse, respondents received $20 in compensation for participating in the interviews.

1. Telephone Interviewers

Interviewers participated in a one-day training held at MPR's Princeton, New Jersey, facilities. The training included a detailed review of the questions and various practice exercises, such as role-playing and one-on-one interviewer practice. Each interviewer participated in general interviewer training before receiving project-specific training. These trained telephone interviewers conducted the interviews in MPR's data collection facility, where they recorded

responses on hard copies of the questionnaire. These responses were data-entered into a database to facilitate data coding and analysis.

In addition, two trained behavioral coders coded 62 randomly taped field test interviews, with 15 or more in each geographic region. Behavioral coding provides answers to critical questions about interviewers' administration of the survey and respondents' comprehension, judgment, and recall of information.

2. Participant Recruitment

White, African American, and Hispanic women from rural, urban, and suburban areas across the United States were represented in the field test. Respondents met the same selection criteria used in the cognitive testing, including the following characteristics: (1) female, (2) current or recent FSP recipients, (3) age 18 through 60 years, (4) English-speaking, (5) have primary food purchase and preparation responsibilities in their household, and (6) have a working telephone.

MPR recruited FSP recipients from FSP offices in four different geographical locations: (1) Monroe County, Pennsylvania; (2) Colleton County, South Carolina; (3) multiple counties, Arizona; and (4) Milwaukee, Wisconsin. With assistance from staff at the Food and Nutrition Service (FNS), MPR requested subject lists from regional FSP offices, which in turn requested subject lists from state FSP offices. Pennsylvania provided a list specific to a rural county, Arizona provided a list that was based on a statewide draw, and Wisconsin provided a list from the city of Milwaukee. Each list contained names of heads of FSP households with the following data elements: household size, age, sex, race, ethnicity, telephone number (including area code), and mailing address (including ZIP code). MPR used a convenience sample to select respondents from these lists for the field test interviews.

After telephone interviewing commenced, interviewers learned that a large number (794) of telephone numbers from the four regions were nonfunctioning. This meant that the number of

subjects from the initial lists was insufficient for completing the target number of interviews. In response, MPR acquired a second set of subject lists from state FSP offices in Pennsylvania, Arizona, and Wisconsin. The second list from Pennsylvania was from another rural county (Blair), whereas Arizona's list was again based on a statewide draw, and Wisconsin's list was based on a different area within Milwaukee. MPR did not request a second list from South Carolina because the original list had a sufficient number of subjects to sample from.

3. Analytic Approach

Table III.2 provides an overview of the interviewing process, as well as the evidence and analytic procedures used to interpret the results. Analysis of the field test results took into account a broad set of findings across analytic techniques, drawing both from the field test and the earlier cognitive tests. We used quantitative procedures, including factor analysis, behavior coding, and correlations and qualitative analysis procedures, including interviewer debriefings and behavioral coding, to assess the overall administration and performance of the questionnaire.

Below, we discuss in greater detail the types of analyses used to identify issues with the instrument:

1. ***Interviewer Observations.*** Interviewer debriefings were used to identify problems with instrument construction issues, such as wording, content, flow, and understandability that were common across respondents and interviewers.
2. ***Response Evaluation.*** Item-by-item response frequencies of categorical responses, "don't know" responses, refusals, and "Other Specify" responses were analyzed at the question level to assess item response variability and to identify problematic questions.
3. ***Internal Consistency.*** Data checks, cross-tabulations, and correlations were conducted to assess whether there were apparent inconsistencies across responses (for example, intake of any vegetables was compared to the sum intake of individual types of vegetable).
4. ***Associations Between Diet and Body Mass Index (BMI).*** Correlations were conducted between individuals' reported weekly food intake and calculated BMI based on self-reported weight and height.

5. ***Factor Analysis.*** Factor analysis was conducted within dietary intake and behavior topics to identify questions that were redundant and the most important questions to be retained.

6. ***Administration Time.*** Times per section and time for the lead-in instructions were measured to detect whether there were problematic questions or an imbalance in time of administration versus coverage of topics.

7. ***Behavioral Coding***. Behavioral coding was conducted on a subsample of respondents and interviewers to determine problems with instrument construction.

TABLE III.2

FIELD TEST PROCESS AND ANALYSIS

Stage in Questionnaire Development	Interviewing Process	Evidence and Statistical Procedures
Stage 3: Field testing	Telephone interviews ▪ Interviewer-administered (n = 453) ▪ Geographic variability (4 regions) ▪ Subgroup variability Interviewer debriefing session	Analysis of 453 telephone interviews ▪ Interviewer observations (severity of problems, classifying and counting problems) ▪ Response evaluation and statistics on percent with refused and "don't know" responses ▪ Internal consistency ▪ Associations between diet, food availability, and BMI ▪ Factor analysis ▪ Administration times Behavioral coding of the number and types of problems for 62 telephone interviews ▪ Readability ▪ Understandability ▪ Comprehension

B. SAMPLE CHARACTERISTICS

Table III.3 shows the sociodemographic characteristics of the total field test sample by region. The sample was comprised of 453 English-speaking women, mean age of 34 years, and 70 percent in the age range 18 to 39 years. Thirty percent fell in the age range of 40 to 60 years. The sample was 36 percent non-Hispanic white, 42 percent non-Hispanic black, 16 percent Hispanic, and 6 percent other race/ethnicity. The majority of Non-Hispanic black women were

TABLE III.3

SOCIODEMOGRAPHIC CHARACTERISTICS OF FIELD TEST RESPONDENTS, BY REGION

Characteristics	Number of Respondents	Mean (SD) or Percentage				
		Total	Northeast	South	Midwest	West
Mean age (in years)	453	34.4 (9.7)	36.1 (9.3)	35.5 (10.3)	32.0 (9.0)	33.7 (9.5)
Age (in years)						
18 - 39	317	70.0%	16.3%	18.3%	18.8%	16.6%
40 - 60	136	30.0	8.2	9.1	5.5	7.3
Race/ethnicity[a]						
Non-Hispanic white	161	35.9	14.3	6.0	5.8	9.8
Non-Hispanic black	187	41.6	3.4	20.4	15.7	2.5
Hispanic	70	15.6	5.8	0.7	2.0	7.2
Other	29	6.3	1.1	0.2	0.7	4.5
Monthly household income (in dollars)						
< 500	52	11.7	2.0	4.2	2.2	3.1
500-999	98	21.6	4.9	7.9	4.4	4.4
1000-1499	113	24.9	5.3	4.9	7.7	7.1
1500-1999	66	14.6	4.4	3.3	5.3	1.5
2000-2499	39	8.6	3.5	1.8	0.9	2.4
2500-2999	23	5.1	1.3	1.1	1.1	1.5
3000 or more	39	8.6	2.4	2.2	1.5	2.4
Don’t know/ missing	9	1.8	0.7	0.7	0.2	0.4
Refusal	14	3.1	0	1.3	0.9	0.9
Food Stamp Program Participation						
Mean participation duration (years)[a]	453	4.5 (5.5)	4.1	5.0	4.8	3.8
Currently not on food stamps	7	1.5%	0%	0.7%	0.4%	0.4
1 - 3 months	29	6.4	2.6	1.3	0.7	1.8
4 - 6 months	42	9.3	2.2	2.4	2.2	2.4
7 - 11 months	32	7.1	1.5	2.2	0.9	2.4
1 - 3 years	164	36.2	8.8	8.2	11.5	7.7
4 - 6 years	73	16.1	3.1	5.5	2.9	4.6
7 - 10 years	43	9.5	3.1	2.0	2.4	2.0
11- 38 years	50	11.0	2.4	3.8	3.1	1.8
Don’t know/ missing	13	2.9	0.7	1.3	0.2	0.7
Total number of respondents	453	453	111	124	110	108

Source: Dietary Behavior Questionnaire Field Test 2006.

[a]Missing data were excluded from the estimates.

interviewed in the South and Midwest regions (20 and 16 percent, respectively), and the majority of Hispanic women were interviewed in the West and Northeast regions (7 and 6 percent, respectively). More than half the sample reported monthly household incomes below $1,500. Most women were currently participating in the FSP (95 percent), with an average duration of 4.5 years. Women's age, income, and duration of FSP participation were evenly distributed by region.

About 30 percent of the women in the sample were of a healthy weight, based on their BMI (see Table III.4). Sixty-five percent were overweight or obese, including 37 percent with BMIs of 30 or greater (classified as "obese"). About 65 percent of the sample described their health as excellent, very good, or good; the other 35 percent reported that they were in fair or poor health.

Eighty-eight percent of women reported doing moderate physical activity for at least 10 minutes at a time, and 42 percent reported moderate physical activity seven days per week. Forty-seven percent of women reported doing vigorous physical activity for at least 10 minutes at a time, and 7 percent reported vigorous physical activity seven days per week.

About 39 percent of the sample reported that they had taken a nutrition class (Table III.4). By far, the most common source of nutrition education was the WIC program (62 percent of women who reported a nutrition class), followed by nutrition education provided by a medical provider or for a health condition such as diabetes (17 percent), and received through the FSP (11 percent). Other sources of nutrition education included the local community (college or high school classes, fitness programs) and child care and Head Start programs. Among the sample of women, 83 percent were familiar with the Food Guide Pyramid and 74 percent with Five-A-Day. Only 41 percent were familiar with My Pyramid, however.

TABLE III.4

HEALTH AND NUTRITION CHARACTERISTICS OF FIELD TEST RESPONDENTS

Characteristic	Number of Respondents	Mean (SD) or Percentage
Mean body mass index (BMI)	438	28.1 (9.1)
Weight status		
Underweight (BMI < 18)	9	2.0
Healthy weight (BMI 18-24.9)	135	29.8
Overweight (BMI 25-29.9)	127	28.0
Obese (BMI $\geq$ 30)	167	36.9
Don't know/refusal	15	3.1
Self-reported health status[a]		
Excellent	32	7.1
Very good	72	15.9
Good	190	42.0
Fair	113	25.0
Poor	45	10.0
Physical Activity[a]		
Number of days a week of moderate physical activity[b,c]		
0	60	13.4
1 to 3	72	16.0
4 to 6	128	28.5
7	189	42.1
Number of days a week of vigorous physical activity[d]		
0	240	53.1
1 to 3	132	29.2
4 to 6	48	10.6
7	32	7.1
Took nutrition classes		
Yes	174	38.5
No	278	61.5
Among those who took nutrition classes, source of class was[e]:		
WIC	107	61.5
Medical, health care provider, diabetes program	30	17.3
Food Stamp Program	19	10.9
College, school, community nutrition program, EFNEP, fitness program, gym	16	9.2
Child care program, day care program, Head Start	10	5.7
Emergency food program	3	1.7
Other	5	2.9
Reported being familiar with[a]:		
Food Guide Pyramid		
Yes	376	83.4
No	75	16.6
Five-A-Day		
Yes	332	74.3
No	115	25.7
My Pyramid		
Yes	182	41.1
No	261	58.9
Total	453	100

TABLE III.4 (*continued*)

Source: Dietary Behavior Questionnaire Field Test 2006.

[a]Estimates exclude cases with missing data or "don't know" response.
[b]Moderate physical activity causes small increases in breathing or heart rate and includes activities such as brisk walking, bicycling, vacuuming, and gardening.
[c]Estimate excludes a missing case for reported number of days.
[d]Physical activity causes large increases in breathing or heart rate and includes activities such as running, aerobics, and heavy yard work.
[e]Multiple responses could be provided, so the total adds to more than 100 percent.

C. RESULTS OF FIELD TEST

In this section, we describe the overall results of each analysis component—interviewer observations, response evaluation, internal inconsistencies, associations between intake, availability, and BMI, factor analysis, administration time, and behavioral coding. We then discuss these results to support our conclusions.

1. Interviewer Observations

After the telephone interviews were completed, we conducted a debriefing with a subsample of interviewers covering general issues about questionnaire administration they may have encountered during the field test. We solicited their perceptions of respondent understanding of questions, feedback respondents expressed when answering questions, and any complaints that the respondents voiced. Overall, interviewers reported few problems with administration of the instrument. Because this was a convenience sample, refusals and refusal conversions were not issues. Once participants chose to respond, there were few break-offs or refusals on specific items.

The interviewers raised the following issues:

- Interviewers discussed that transitioning from the confidentiality statement to the first question on fruit intake proved problematic for some respondents. Often, respondents requested that the interviewer repeat the question because the respondent was not yet focusing on answering questions about food intake in the past week.
- Interviewers reported that there was some confusion in switching back and forth between questions with different response categories (such as "number of times did you eat ____ in the past week" versus "usually, sometimes, rarely, or never)." Respondents sometimes would answer using the four-point scale when the response category was number of times.
- On question 8, respondents often considered green beans and green peas to be dark green vegetables.
- On question 12, some respondents, when asked about consumption of plain, chocolate, or flavored milk, would answer, "I drink 2%."

- On question 12, the wording involved "how many times did you drink plain…" and there was sometimes an issue for people that put milk on their cereal but didn't consider that to be drinking milk. There was concern that respondents would say, "I never drink milk," when they actually added milk to cereal. With the skip pattern in the questionnaire, the questionnaire might not capture some respondents who put milk on their cereal.
- On question 70, some respondents reported their weight but then said that they were pregnant.
- Interviewers raised concern that respondents may have reported intakes that were not typical of their usual intake behaviors. For instance, some respondents told interviewers that what they ate in the past week was not representative of what they normally ate.

2. Response Evaluation

We identified potentially problematic questions based on response variation by assessing responses, question by question, across 453 respondents and across interviewers.[3] To assess response variation, we analyzed categorical responses, and "don't know", refused, and "Other Specify" responses to individual survey instrument questions (see Appendix A for the field test instrument).

a. Categorical Response Frequencies

Analyzing the variation in categorical responses makes it easier to identify questions that may be problematic. For intake questions, this included assessing the number of times a food or beverage group was consumed. We also investigated the unit with which the response was recorded. We examined response variation on behavior and attitude questions, which had response categories using a four-point scale of "usually," "sometimes," "rarely," or "never," and "agree" or "disagree" categories. Finally, we reviewed the variation of responses in the physical activity section ("yes" and "no" responses, recorded times of physical activity, and number of

[3] We determined that one interviewer had a relatively higher frequency of cases with very high weekly intakes (for example, 49 to 84 times per week) suggesting that she had marked the "daily" unit rather than the "weekly" one. This was verified by listening to the audiotape of interviewers. We made the decision to exclude this interviewer's cases (n = 19) from our analyses of responses to weekly intake questions.

days per week). The sociodemographics and nutrition and health characteristics, shown in Tables III.3 and III.4, display the response variation for the demographics section, which presented few problems. Information was missing and responses were refused for about five percent of all cases, but low overall.

b. Recorded Response Units on Intake Questions

For the dietary intake modules, we reviewed the responses to questions that asked respondents to quantify intake over the past week in terms of reporting units ("per day," "per week," "never eat") to discern the variability in reporting behavior across food groups. This addresses research questions such as: Are some food groups more likely to be reported as daily behaviors using the "per day" unit of response? Are some food groups more likely to have responses of "never eat"? Table III.5 shows the percentage of recorded responses that correspond to intakes that were reported as "per day," "per week," or "never eat."

TABLE III.5

RECORDED UNIT (NEVER, PER DAY, PER WEEK) FOR DIETARY INTAKE MODULES

Module	Number of Questions	Never Eat (%)	Eat Per Day (%)	Eat Per Week (%)
Fruit	2	3.1	14.3	81.9
Vegetables	5	2.5	8.8	88.3
Dairy and calcium foods	5	6.6	8.3	84.6
Grains	3	9.7	5.8	84.0
Meat	4	4.4	5.9	88.0
Nuts and beans	3	8.4	3.9	86.9
Sweetened beverages	2	9.9	16.1	73.2
Salty snacks	2	7.2	5.1	87.4

For all intake questions, less than 20 percent of responses were "per day." About 14 percent of responses of those eating fruit or drinking 100% fruit juice were recorded as "per day," and 16

percent of responses on consuming sweetened beverages were "per day." Although the highest percentages recorded as "per day" were for beverage consumption (fruit juice and sweetened beverages), it is less likely that a pattern exists in how respondents report beverage consumption; both solid fruit intake and fruit juice intake were recorded as the number of times "per day" for 14 percent of respondents (data not shown). Between 4 and 10 percent of responses were reported as "per day" for consumption of vegetables, dairy and calcium-containing foods, grains, meats, salty snacks, and nuts and beans.

The high frequency of use of the "per week" response is consistent with questions phrased to ask respondents to think about the past week and to report "how many times in the last week." The past week is intended to serve as the frame of reference for the respondent to think about usual food intake, and it may be difficult for some respondents to switch back and forth between "per day" and "per week" response categories when thinking about the last week. Furthermore, the observed frequencies of responses on the intake questions are reasonable patterns in terms of how respondents provide intake information using a food frequency methodology. Based on the findings from the recorded unit of intake frequency, we have recommended some slight modifications to the instrument to assist both interviewers and respondents in the flexibility desired to report in different units across foods or food groups.

c. Frequencies of "Don't Know" and Refused Responses

Appendix B presents a table with the number of times a response fell into the "don't know" and "refusal" categories.[4] For all questions, there were low rates of refusals or missing item nonresponses. Frequencies of refusals or missing item nonresponses were the lowest when sociodemographic questions were excluded. For instance, there were no refusals on specific

[4] Because of the low number of responses that fell into these categories, we did not analyze these responses by subgroup.

question items.[5] Twenty-one questions out of 68 had "don't know" responses. However, none of the 21 questions had more than 8 (1.7 percent) responses that were "don't know," and the majority of questions had only one or two "don't know" responses (out of 453 cases).

The sociodemographics and personal characteristics module had slightly higher frequencies of refusals and "don't know" responses for particular questions, although the percentages remained low. Question 60, "What was your total household income last month, before taxes…?" yielded 39 "don't know" responses (8.6 percent) and 18 refusals (3.9 percent). Question 70, "How much do you weigh without clothes or shoes on?" yielded 13 "don't know" responses (2.9 percent), and question 78a, "How long have you been on the Food Stamp Program?" had 10 "don't know" responses (2.2 percent). This larger proportion of "don't know" responses is expected given the questions' sensitivity and the higher level of recall difficulty of the information being requested. Overall, questions were not problematic based on the low percentages of refusals and "don't know" responses.

d. Frequencies of "Other Specify" Responses

"Other Specify" responses were options in questions 60, 75, 78a, and 78c and were included to determine whether we should add other categories to the list of potential responses or whether the question was too time-consuming to administer in a telephone survey. Question 60 (anything to change or improve diet in the last 12 months) yielded the greatest number of "Other Specify" responses (total n = 254). There were 136 responses that were back-coded to existing response categories and 118 responses that were coded into new categories, including "drink more water" (n = 45), "increase whole grains" (n = 11), "eat healthier" (n = 9), and "reduce portion sizes" (n

[5] The low rate of item nonresponse/refusals could relate in part to good cooperation and the way that respondents were contacted to participate. We did not make more than three attempts to reach respondents, and we had excellent response from those who were contacted.

= 8). Of the remaining responses (n = 54), most related to introducing a specific food or food component into the diet (examples include tofu, organic food, and food with fiber).

Question 75 (racial background) had 13 "Other Specify" responses, 11 of which were either Hispanic, Mexican, or Puerto Rican and were coded as Hispanic for the racial/ethnic variable. Question 78a (length of time in FSP) had 10 "Other Specify" responses. Seven of these described that the respondent was not currently participating in the FSP. The other three included "since 1988," "just a few days, just started," and "week." Question 78c (where nutrition classes were received) had 73 "Other Specify" responses.

The sources of nutrition classes required considerable coding to new categories. As Table III.4 shows, 64 respondents reported nutrition class sources besides WIC and the FSP. Examples of other sources included medical and health care providers and diabetes programs (n = 30), college/school/community nutrition program/EFNEP/fitness program/gym (n = 16), child/daycare program/Head Start (n = 10), emergency food program (n = 3), and other (n = 5).

3. Internal Consistency

Another method of distinguishing problematic questions is to compare responses across questions that have similar content. We reviewed the questionnaire and identified particular intake questions that covered similar content. We then compared responses to questions covering the same food groups. For instance, we made comparisons between vegetable intake responses, general breakfast intake to non-cereal consumption, and fruit intake and fruit or vegetables as snacks. We found only one type of inconsistency in which different questions covered the same type of material but yielded discrepant responses. In the vegetable intake questions, the number of times per week that respondents consumed vegetables of any kind (question 5) was compared to the sum of the number of times per week that respondents consumed unique types of vegetables (questions 6 through 9). In 59 percent of cases, the total

intake of any vegetables (question 5) was less than the sum of intake across individual vegetables questions 6 through 9; 9 percent of cases had the same value; and, in 32 percent of cases, the total intake of any vegetables in question 5 had a higher reported intake than the sum of reported intake in questions 6 through 9. Our general findings are consistent with previous research conducted by the National Cancer Institute (NCI) that found that summary fruit and vegetable intake questions are likely to underestimate total intake compared to asking about a list of several individual fruit and vegetable items (Thompson et al. 2000). Based on our findings, one summary question on fruit and vegetable intake cannot be used to replace the individual questions on specific types of fruits and vegetables.

a. Associations Between Diet and Food Availability

To address internal consistency in reporting dietary intake, we assessed the relationship between the availability of certain foods in the household (in general) with reported intakes of those same foods (in the last week), to the extent that there were parallel questions (for example, question 54 asks about household availability of 1%, skim, or fat-free milk, and question 14 asks about intake of 1%, skim, or fat-free milk).

Table III.6 shows the percentage of respondents with any availability in the home but no reported intake in the last week, and the percentage of respondents with some reported intake in the last week but no availability in the home. Overall, respondents were more likely to report general availability of a food or beverage type in the home but not consume it (in the last week). They were less likely to report that they consumed something in the last week but not have it available in the home.[6] This suggests that there are far fewer cases in which non-consumers of a

[6] The relatively higher percentage of 1% and fat-free milk reported intake compared to other food and beverage reported intake may be associated with the exclusion of non-milk consumers from the availability and reported intake estimates. When availability was limited to "usually" and no intake was reported, percentages dropped by more than 50 percent for all foods and beverages compared (data not shown).

particular food or beverage in the last week usually have it available at home. Overall, the low percentages indicate consistency in reported intake and availability. Reported dietary intakes should capture intake at home and away from home. Although the reference periods are different, this information provides some indication that availability of food in the home is related to intake.

TABLE III.6

ASSOCIATION BETWEEN HOUSEHOLD AVAILABILITY OF FOOD AND REPORTED INTAKE

Type of food or beverage:	Availability Question Number	Intake Question Number	Any Availability in Home, but No Intake in Last Week (%)	Some Intake in Last Week but No Availability in Home (%)
Fruit (canned, dried, fresh, or frozen; excluding fruit juices)	49	2	11	<1
Dark green vegetables (broccoli, dark green leafy lettuce, kale, Romaine lettuce, spinach, greens, etc.)	50	8	10	2
Orange vegetables (such as carrots and sweet potatoes)	51	9	34	2
Salty snacks like potato chips, corn chips, cheese puffs, and pork rinds	52	35	12	3
Soft drinks, fruit-flavored drinks, and fruit punch (and intake of fruit flavored drinks/sweetened tea)	55	33	19	2
Soft drinks, fruit-flavored drinks, and fruit punch (and intake of regular soda and soft drinks)	55	34	24	1
1%, skim, or fat-free milk	54	14	9	8
Whole-wheat bread	56	19	22	2
Cereal like Cheerios, raisin bran, shredded wheat, Total, Wheaties, and oatmeal	57	18	37	<1

Overall, there were significant, positive correlations between availability and reported intake, ranging from 0.21 to 0.66 (see Table III.7). The highest correlation coefficients were found for whole wheat bread (r=0.66) and 1%, skim, or fat –free milk (r=0.65), followed by salty snacks like chips, cheese puffs, and pork rinds and orange vegetables (r=0.44). The correlation between the availability of soft drinks and other sweetened beverages in the household and their

combined intake (r=0.32) is slightly higher than that of either beverage intake question alone (fruit-flavored drinks, r=0.21; soft drinks, r=0.26), indicating that (1) both intake questions are important to overall intake of sweetened beverages, (2) both are positively related to availability in the home, and (3) home is not the only source of sweetened beverages (that is, we would predict higher correlation coefficients for foods consumed primarily from home food sources). Overall, higher correlation coefficients for foods such as low-fat milks and whole-grain breads support expectations, since these foods are more commonly consumed at home versus away from home. Lower, significant correlations are important for the other food items, since they suggest that availability of foods in the household is positively associated with the frequency with which those foods are consumed.

4. Associations Between Diet and BMI

Since a high proportion of the FSP population is overweight, and FSNE efforts are directed to improving diet and maintaining a healthy weight or reducing overweight and obesity, we were interested in whether any dietary intake questions or behaviors were associated with BMI. Although we cannot make any statements with respect to causality, the consumption patterns of certain foods or dietary behaviors (such as eating breakfast) and their association with BMI are useful to consider in deciding what questions are important to retain in a validation study of the FSP population where one of the nutrition outcomes of interest could be BMI. (As an aside, most cross-sectional studies find no or low correlations between dietary variables and BMI.)

TABLE III.7

CORRELATION BETWEEN FOOD AVAILABILITY IN THE HOUSEHOLD AND REPORTED WEEKLY FREQUENCY OF FOOD INTAKE

Availability of:	Availability Question Number	Intake Question Number	Sample size	Spearman correlation coefficient (r)
Fruit (canned, dried, fresh, or frozen; excluding fruit juices)	49	2	424	0.29*
Dark green vegetables (broccoli, dark green leafy lettuce, kale, Romaine lettuce, spinach, greens, etc.)	50	8	429	0.33*
Orange vegetables (such as carrots and sweet potatoes)	51	9	431	0.44*
Salty snacks like potato chips, corn chips, cheese puffs, and pork rinds	52	35	429	0.44*
Soft drinks, fruit-flavored drinks, and fruit punch (and intake of fruit flavored drinks/sweetened tea)	55	33	412	0.21*
Soft drinks, fruit-flavored drinks, and fruit punch (and intake of regular soda and soft drinks)	55	34	416	0.26*
Soft drinks, fruit-flavored drinks, and fruit punch	55	33 + 34	393	0.32*
1%, skim, or fat-free milk	54	14	432	0.65*
Whole wheat bread	56	19	429	0.66*
Cereal like Cheerios, Raisin Bran, Shredded Wheat, Total, Wheaties, and oatmeal	57	18	430	0.33*

Source: Dietary Behavior Questionnaire Field Test, 2006.

Note: Correlations exclude outliers (reported weekly frequency of intake greater than 40).

*Correlation coefficients are significant at the $p<0.001$ level.

Table III.8 shows correlations between BMI and the reported weekly intake of specific food items and certain behaviors. We observed low but significant inverse correlations between BMI and reported consumption of fruits, dark green and orange vegetables, yogurt, calcium-fortified orange juice or soy milk, whole-grain cereals, whole grain rice or pasta, peanut butter, and eating breakfast, and a low positive correlation with weekly intake at fast food places at the 0.10 level of significance. There were no significant correlations with any other food intake questions (for example, sweetened beverages and soda).

TABLE III.8

CORRELATION BETWEEN BODY MASS INDEX AND REPORTED WEEKLY FREQUENCY OF FOOD INTAKE OR BEHAVIOR

Food or food group or eating behavior	Sample size	Spearman correlation coefficient (r)	Probability
Fruit (canned, dried, fresh, or frozen; excluding fruit juices) (Q2)	410	-0.10	0.04
100% fruit juice (Q4)	412	-0.12	0.02
Vegetables of any kind (Q5)	411	-0.03	0.49 NS
Dark green vegetables (broccoli, dark green leafy lettuce, kale, romaine lettuce, spinach, greens, etc.) (Q8)	415	-0.13	0.01
Orange vegetables (such as carrots and sweet potatoes) (Q9)	417	-0.15	0.002
Yogurt (Q15)	417	-0.15	0.002
Calcium-fortified orange juice or calcium-fortified soy milk (Q17)	415	-0.24	<0.0001
Cereal like Cheerios, Raisin Bran, Shredded Wheat, Total, Wheaties, and oatmeal (Q18)	417	-0.13	0.008
Brown rice or whole wheat pasta (Q20)	416	-0.10	0.04
Peanut butter (Q31)	414	-0.12	0.02
Fruit-flavored drinks/sweetened tea (Q33)	398	-0.02	0.68 NS
Regular soda and soft drinks (Q34)	403	0.02	0.62 NS
Sweetened beverages (Q33 and Q34)	379	-0.03	0.53 NS
Eat at fast food places (Q39)	416	0.08	0.09
Eat breakfast (Q62)	417	-0.10	0.04

Source: Dietary Behavior Questionnaire Field Test, 2006.

Note: Correlations exclude outliers (reported weekly frequency of intake greater than 40).

5. Factor Analysis

Factor analysis is one of several analytic tools to be applied to the field test data responses to aid in assessing what survey questions (variables) perform well and also to examine which ones have substantial overlaps of content and are therefore redundant or extraneous. Factor analysis provides (1) an understanding of the underlying factors that may be related to the dietary behavior(s) of interest, and (2) correlations between dietary variables of interest.

Factor analytic methods are used to examine the interrelationships between variables in a data set. They assume that the observed variables are linear combinations of some underlying (or hypothetical) factors. Some of these factors are common to the two or more variables in the set of variables, and some are unique to each variable of interest. A factor analytic approach is used to address whether observed correlations are explained by underlying factors. We identified a set of items within domains (or topical modules such as fruit and vegetable intake) that correlated more with each other than with others. The use of these techniques provides a means of considering a number of related or unrelated variables and uses correlations to identify those that have common underlying factors. Exploratory factor analysis serves as a relatively quick way of ascertaining the minimum number of hypothetical factors that can account for the observed correlations (or covariation) and serves as a means of data reduction.

a. Interpreting Factor Analysis Results

The general purpose of factor analysis is to describe a set of p variables (survey questions) in terms of a smaller number of indices or factors, thereby elucidating the relationship between the variables. Consider a factor analysis of p variables and m factors. The common factor model can be described as:

$$X_i = a_{i1}F_1 + a_{i2}F_2 + ... + a_{i\,m}F_m \quad i=1, 2, ..., p \ ,$$

where X_i is the ith variable, a_{ij} is the jth factor loading for the ith variable, and F_1, F_2, ... F_m are the uncorrelated common factors. The square of the factor loading a_{ij} is the proportion of the variance of X_i that is explained by the factor F_j. The variance of ith variable can be split into two components, one corresponding to the variance specific to that variable (the "specific variance" or "unique variance") and a variance that is common to all variables ("the common variance"), in the form of the m factors. The estimate of this second component is the "communality," the sum of the squared factor loadings across the m factors for the variable in question. In the estimation of the factor loadings, it is necessary to have prior estimates that are used as starting values in the estimation process. In the SAS software, the default prior estimates are the squared multiple correlations (SMCs) of each variable with all the other variables. With these data, however, the SMCs are often low, with sometimes large differences between the prior and final communality estimates. This results in some instability, which can be alleviated by using the maximum absolute correlation of each variable with all the other variables. Unless otherwise specified, this is what is done with these data.

The partial pairwise correlations between the variables after controlling for all other variables should be small compared to the original correlations; this indicates that the common factor model can do a good job of explaining the overall variation. However, if the partial pairwise correlations differ little from the original correlations, or worse, are actually larger in absolute value, then this could be an indication that the common factor model is not appropriate for the data. Variables must be removed and/or new variables must be added to the set included in the factor analysis to improve the factor model. Kaiser's Measure of Sampling Adequacy (MSA) is a summary of how much smaller the partial correlations are from the original correlations. This measure is calculated for each variable, and overall. Values of 0.8 or 0.9 are considered good for the overall MSA, while values below 0.5 are unacceptable. For values

under 0.7, not uncommon for these data, we review the MSAs for individual variables to determine if any of the included variables are candidates for exclusion from the common factor model.

There are several methods used to estimate the factors. The estimation methods used for the factor analyses described in this document are principle factor analysis (PFA) and Maximum Likelihood (ML). In deciding the number of factors to use for each factor analysis, we analyzed a scree plot of eigenvalues and the proportion of common variance taken up by eigenvalues. In addition, a statistical chi-squared test, available with the ML factor analysis, was performed to aid in deciding how many factors would be needed. For the chi-squared test, for a given number of factors in a particular module, the null hypothesis is that there is insufficient evidence to suggest more factors would be needed. The alternative hypothesis is that this number of factors is insufficient for these data. In general, a p-value less than 0.05 is evidence to suggest more factors would be needed. For each module, the proportion of common variance based on the principle factor analysis and ML factor analysis is discussed; however, individual results of chi-squared tests are not discussed.

Regardless of the method used to estimate factors, factor analysis does not provide unique solutions. Hence, it is possible to rotate the factors to obtain more easily interpretable factor loadings. In all cases with the analyses here, an orthogonal rotation was sufficient to obtain easily interpretable factors.

b. Assumptions of Factor Analysis

The factor analysis model assumes that the variables (that is, the survey questions) to be investigated have a multivariate normal distribution. With the positive skewness that is evident with the weekly consumption variables (which make up the majority of questions within each module), and the four-category responses for the usually-sometimes-rarely-never questions, this

assumption will obviously be violated. However, transforming the weekly consumption variables to dampen the skewness will give us variables that more closely approximate the normal distribution. In particular, a square-root transformation was used to dampen the positive skewness. The four-category response variables (questions) were in an ordinal scale; an approximation to a normal distribution cannot truly be obtained for these variables. Each of these variables will be discussed on a module-by-module basis.

c. Organization of Modules and Topics

The questions about consumption of various foods are grouped into modules, within which it is desired to determine the relationship between the questions. Table III.9 gives the layout of the modules, with the topics for each question within each module.

d. Data Preparation for Factor Analysis

The dietary intake and behavior questions specifically asked about consumption of various food groups either in the past seven days on a per-week or per-day basis, or on an ordinal scale of usually, sometimes, rarely, or never. For the questions on a per-week or per-day basis, the respondent had the option of answering on a per-week or per-day basis; per-day responses were converted to total weekly consumption (that is, the number of times the food was consumed in the past week). To ensure comparisons on the same scale, all variables (survey questions) were re-scaled to have a zero mean and unit variance. In other words, one type of intake or behavior, such as soda intake, may have a higher mean intake because of the nature of the food, i.e. several times a day. Another question, such as eating at fast-food restaurants, may have a lower mean, but this lower mean would still signify a frequent behavior. The two means would be re-scaled such that comparisons are relative and high frequency responses can be compared across different questions.

TABLE III.9

TOPICS WITHIN MODULES

Module	Topics Within Module
Fruit, vegetables, and french fries	Fruit, unsweetened fruit juice, all vegetables, potatoes, french fries, dark green vegetables, orange vegetables
Fruit and vegetables	Fruit, unsweetened fruit juice, all vegetables, potatoes, dark green vegetables, orange vegetables
Dairy and calcium-enriched foods	Milk as beverage, milk on cereal, yogurt, cheese, calcium-fortified juice or soy milk
Whole-grain foods	Processed whole-grain breakfast cereal, whole-grain bread, brown rice/whole-grain pasta
High-protein foods	Poultry, red meat/pork, deli meats, fish, eggs, peanut butter, dry beans
Discretionary fats (without french fries and chips)	Butter/margarine used on vegetables, skim milk, butter/margarine used on bread/pasta/tortillas, fried poultry, remove skin from poultry, trim fat from red meat/pork, drain fat when cooking hamburger, fat used when cooking
Discretionary fats (with french fries and chips)	Butter/margarine used on vegetables, skim milk, butter/margarine used on bread/pasta/tortillas, fried poultry, remove skin from poultry, trim fat from red meat/pork, drain fat when cooking hamburger, fat used when cooking, french fries, chips/cheese puffs/pork rinds
High-sodium foods	Chips/cheese puffs/pork rinds, crackers/pretzels, salt as seasoning
Weight control	Fruit as dessert, fruit and vegetables as snacks, sweetened fruit drinks, soda, fast food, healthier diet past 12 months, tried to lose weight in past 12 months, snack or eat meals in front of television, eat breakfast
Shopping	Plan meals before shopping, use list when shopping, look at nutrition labels when buying product
Attitudes	Health status, healthy food too expensive, too busy to eat healthy, healthy food tastes bad, family says healthy food tastes bad, born to be fat or thin
Food availability	Available at home: fruit, dark green vegetables, orange vegetables, chips/cheese puffs/pork rinds, candy, skim milk, soda/sweetened fruit drinks, whole-wheat bread, whole-grain cereal

Outliers and Missing Values. For some interviewers and respondents, the "per-day" and "per-week" basis of the consumption of a particular food in the past seven days caused confusion. Some respondents may have given a response that was intended to be on a weekly basis (for example, four times in the past week), but was interpreted by the interviewer as being on a daily basis, and thereby recorded as "per day." This response would then be converted in the analysis stage to a value seven times what it should have been (that is, 28 times in the past

week). This occurred most commonly with one particular interviewer who conducted 19 interviews, and in select cases where responses were clearly nonsensical and out of range of other responses. For these cases, responses were set to missing when any of the questions in the module had "per-day" and "per-week" questions. This affected all of the intake modules except the discretionary fat module without french fries and chips, as well as the weight control module. Table III.10 shows the number of missing values for each module and the source of the missing values. Sometimes a respondent (case) was considered missing due to more than one question; for example, one question might cause a case to be missing because it was an outlier, and another question might have been marked missing by the interviewer. For that reason, the totals of the columns may exceed what is given in the "Total" column.

e. Factor Analysis Results for Intake Modules

The intake modules consist of the fruit and vegetable modules (with and without french fries), dairy and calcium-enriched products, whole-grain foods, high-protein foods, discretionary fats (with and without french fries and chips/cheese puffs/pork rinds), and high-sodium foods.

i. Fruit and Vegetables

The fruit and vegetables module contains seven variables, pertaining to six foods: fruit, unsweetened juice, all vegetables, potatoes (not french fries), french fries, dark green vegetables, and orange vegetables. In the fruit and vegetables module, a common factor model with 2 factors was used. Kaiser's Overall MSA is 0.73, indicating that the partial correlations are relatively small compared to the original correlations. Two factors explain 86 percent of the common variance according to a principle factor analysis. One rotation of the factor pattern using a principle factor analysis is given in Table III.11. Note that the factor loadings in Table III.11 and all subsequent factor loading tables represent the correlation between the original variable and its factor.

TABLE III.10

SOURCE OF MISSING VALUES, BY MODULE

Module	Outliers	Don't Know/ Refused	Valid Blank	Missing	Nonvalid Response	Total
Fruit, vegetables, and french fries	30	2	1	10	0	42
Fruit and vegetables	30	2	1	10	0	42
Dairy and calcium-enriched foods	25	3	39[a]	6	0	70
Whole-grain foods	21	3	0	3	0	27
High-protein foods	23	1	16	17	0	56
Discretionary fats with french fries and chips	21	0	53[b]	8	0	81
Discretionary fats without french fries and chips	0	2	55	5	0	59
High-sodium foods	21	0	0	3	0	24
Weight control	22	3	4	12	1	42
Weight control, no binary variables	22	1	4	10	1	38
Shopping habits	0	1	0	0	0	1
Attitudes	0	21	0	0	0	21
Attitudes (removing q48)	0	14	0	0	0	14
Availability	0	1	0	1	0	2

[a]Two additional "blank" cases were converted to "0," since the response was "didn't eat cereal in the past 7 days." Valid blanks are due to skip patterns (for example, if respondent does not drink milk, that respondent does not then respond to the type of milk consumed).

[b]The discretionary fats groups include the question on frequency of skim milk consumption. Non-milk drinkers are excluded in the two discretionary fats modules (with and without french fries and chips).

TABLE III.11

ROTATED FACTOR PATTERN FOR FRUIT AND VEGETABLES (INCLUDING FRENCH FRIES)

Variable	Factor 1	Factor 2
Fruit	0.58	0.08
Unsweetened Juice	0.32	0.09
All vegetables	0.68	0.26
Potatoes (except french fries)	0.39	-0.26
French fries	-0.05	-0.29
Dark green vegetables	0.59	0.41
Orange vegetables	0.56	0.01

As is apparent from this rotation of the factor pattern, the first factor is a measure of healthier foods, particularly raw fruit and dark green and orange vegetables. French fries, with a coefficient of near zero, do not figure here. However, the second factor distinguishes between green vegetables and potatoes. The similar result can be seen with a maximum likelihood (ML) factor analysis, where 89 percent of the common variance in the seven fruit and vegetable variables was explained with the first two eigenvalues. When the french fries variable is excluded from the factor analysis, the Kaiser's Overall MSA statistic remained fairly static (0.74), but the construction of factors changes somewhat. As the factor pattern in Table III.12 indicates, there is no longer a "healthy vs. unhealthy" factor since none of the variables left are indicative, in and of themselves, of unhealthy eating habits. Rather, the first factor could be described as an indicator of the green-ness of the vegetable, with dark green vegetables having the highest value. The second factor describes anything not green, whether vegetable or not.

TABLE III.12

ROTATED FACTOR PATTERN FOR FRUIT AND VEGETABLES
(EXCLUDING FRENCH FRIES)

Variable	Factor 1	Factor 2
Fruit	0.35	0.51
Unsweetened juice	0.29	0.17
All vegetables	0.65	0.34
Potatoes (except french fries)	0.09	0.42
Dark green vegetables	0.73	0.13
Orange vegetables	0.39	0.39

ii. Dairy and Calcium-Enriched Products

The dairy and calcium-enriched products module contains five questions: milk as a beverage, milk on cereal, yogurt, cheese, and calcium-fortified orange juice or soymilk. The Kaiser's Overall MSA is 0.61, indicating that ideally more variables should be used to better

define the factors in the common factor model. No obvious candidate is evident for removal; the lowest individual MSAs are 0.60 each for cheese and milk as a beverage. A common factor model with 2 factors was used; two eigenvalues accounted for 93 percent of the common variance. One rotation of the factor pattern using a principle factor analysis is given in Table III.13.

TABLE III.13

ROTATED FACTOR PATTERN FOR DAIRY AND CALCIUM-ENRICHED FOODS

Variable	Factor 1	Factor 2
Milk as beverage	0.26	0.50
Milk on cereal	0.45	0.15
Yogurt	0.50	0.14
Cheese	0.12	0.54
Calcium-fortified orange juice/soy milk	0.35	0.12

Two clusters are apparent from this rotation, one with milk on cereal, yogurt, and calcium-fortified orange juice or soymilk, and the other with milk (as beverage) and cheese. The similar result can be seen with a maximum likelihood (ML) factor analysis. Two eigenvalues accounted for 94 percent of the common variance in the variables of this module.

iii. Whole-Grain Foods

With only three variables in the whole-grain foods module, which consists of questions about whole-grain cereals, whole-grain bread, and whole-wheat pasta/brown rice, there is a limit to how much a factor analysis can accomplish. Indeed, the Kaiser's Overall MSA is 0.59, indicating that, ideally, more variables should be used to better define the factors in the common factor model. No obvious candidate variables are evident for removal; the lowest individual MSA is for whole-grain cereal, at 0.57. A common factor model with two factors was used; two

eigenvalues explained all of the common variance. One rotation of the factor pattern using a principle factor analysis is given in Table III.14.

TABLE III.14

ROTATED FACTOR PATTERN FOR WHOLE-GRAIN FOODS

Variable	Factor 1	Factor 2
Whole-grain cereal	0.48	0.31
Whole-grain bread	0.54	0.20
Whole-wheat pasta/brown rice	0.19	0.44

The two factors seem to separate whole-grain cereal and whole-grain bread, which are in a cluster defined by the first factor, and whole-wheat pasta/brown rice, which is defined by the second factor.

iv. High-Protein Foods

The high-protein foods module contains seven variables: poultry, red meat/pork, deli meat, fish, eggs, peanut butter, and dry beans. The Kaiser's Overall MSA is 0.63, indicating that ideally more variables should be used to better define the factors in the common factor model. A common factor model with three factors was used; three eigenvalues accounted for all of the common variance. One rotation of the factor pattern using a principle factor analysis is given in Table III.15.

As is apparent from this rotation of the factor pattern, the first factor is a measure of the "less healthy" protein sources, with high loadings on red meat and deli meats. The second appears to be a measure of the "more healthy" sources, with moderately high loadings on poultry, fish, and dry beans. Finally, the third factor is what is left over in the common variance, with a fairly high loading for peanut butter and moderate loadings for eggs and dry beans and, to a lesser extent, fish. Identifying a cluster across the three factors is real evidence of similarity:

clearly, beans and fish cluster together very closely across all three factors. Poultry is also similar to beans and fish, but the similarity breaks down with the third factor; red meat/pork and deli meat are similar to each other, but they differ in the second factor, with deli meats "healthier" than red meat/pork. This may relate to the variety of foods that might be consumed under deli meats—ranging from lower-fat poultry foods (for example, turkey breast) to higher-fat pork foods (for example, bologna). The similar result can be seen with a maximum likelihood (ML) factor analysis. Three eigenvalues accounted for all of the common variance in the variables of this module.

TABLE III.15

ROTATED FACTOR PATTERN FOR HIGH-PROTEIN FOODS

Variable	Factor 1	Factor 2	Factor 3
Poultry	0.09	0.51	-0.07
Red meat/pork	0.65	0.02	0.09
Deli meats	0.62	0.22	0.07
Fish	0.09	0.47	0.24
Eggs	0.24	0.12	0.29
Peanut butter	0.03	0.04	0.46
Dry beans	0.10	0.41	0.28

v. Discretionary Fats/Fat Sources

The discretionary fats without fries and chips module contains eight variables: butter/margarine on vegetables, skim milk, butter/margarine on bread/pasta/tortillas, fried poultry, remove skin from poultry, trim fat from red meat/pork, drain fat when cooking hamburger, and fat used when cooking. This module is more difficult to apply in a factor analysis because the scale is ordinal on all of the variables, and factor analysis requires variables that are at least reasonably close to multivariate normal. The levels of possible responses on most variables are "usually," "sometimes," "rarely," and "never." Not only is the normality

assumption more problematic with only four levels, but we also do not know if the distances between the levels are equal. For example, the distance between "usually" and "sometimes" may not be the same as the distance between "sometimes" and "never." For the six questions that have only these four categories as options, "never" refers either to never consuming the item in question or not doing the thing in question. For the questions related to butter on vegetables, butter on bread, and fried poultry, never consuming these items is considered a healthy eating pattern. The ordinal scores are the same as those given in the questionnaire ("usually" is set to "1," "sometimes is set to "2," "rarely" is set to "3," and "n" for never is converted to a "4"). For the questions related to skim milk, skinning poultry, and trimming the fat off red meat/pork, never consuming these items or doing these activities is considered an unhealthy eating habit. For ease of interpretation of the factor analysis, the ordinal scores are the reverse of those given in the questionnaire: "n" or never is set to "1," "rarely" is set to "2," and so forth.

For the question "How often do you drain the fat when cooking hamburger?", two additional categories are available: "don't use hamburger" (so no draining is required) and "use lean or extra lean hamburger" (again, no draining is required). Since this question is an indicator of saturated fat intake, presumably not using hamburger at all leads to lower fat consumption than using lean/extra lean hamburger, and using lean or extra lean hamburger leads to lower fat consumption than usually draining the fat from hamburger. For the purposes of this analysis, we will apply codes to the two additional categories that indicate lower fat consumption than usually draining the fat ("n" for never consuming hamburger is set to "6," using lean or extra lean hamburger is set to "5," "usually" is set to "4," "sometimes" is set to "3," "rarely" is set to "2," and "never" is set to "1"). Again, however, we assumed that the distances between the various levels are the same, when in fact they may not be. The question "What fat do you cook with?" does not contain the usually-sometimes-rarely-never sequence. Rather, the choices are "oil,"

"solid fat," "use both equally," and "never cook with fat or oil." We reorder these in order of bad fat intake: (1) cook with solid fat, (2) cook equally with solid fat and oil, (3) cook with oil, (4) never cook with fat or oil.

With all of the adjustments discussed above, the Kaiser's Overall MSA had a value of 0.60, indicating that ideally more variables should be used to better define the factors in the common factor model. There were no obvious choices of variables to remove from the model; the lowest individual MSAs were for the butter/margarine variables, with values of 0.57 for butter/margarine on vegetables and 0.58 for butter/margarine on bread/pasta/tortillas. A common factor model with three factors was used; three eigenvalues accounted for 94 percent of the common variance. One rotation of the factor pattern using a principle factor analysis is given in Table III.16.

TABLE III.16

ROTATED FACTOR PATTERN FOR DISCRETIONARY FATS/FAT SOURCES (EXCLUDING FRIES AND CHIPS)

Variable	Factor 1	Factor 2	Factor 3
Butter on vegetables	0.63	0.29	-0.01
Skim milk	0.11	0.23	0.05
Butter on bread	0.66	0.15	0.11
Fried poultry	0.14	0.41	0.03
Skin poultry	-0.09	0.54	0.25
Trim fat from red meat	-0.02	0.33	0.52
Drain fat from cooking hamburger	0.06	0.04	0.59
Type of cooking fat	0.20	-0.01	-0.01

The first factor quite clearly is a measure of using butter or margarine, with high loading for butter on vegetables and butter on bread, and a moderate loading for type of cooking fat (which could be butter). The second factor is less clear, but seems to be a measure of how one eats poultry. The third is a measure of actions one takes to reduce fat when cooking meats.

Identifying a cluster across the three factors is real evidence of similarity: none of the variables are completely similar across all three factors, although the most similar questions appear to be skim milk and fried poultry, which would apparently be inversely related. A similar result can be seen with a maximum likelihood (ML) factor analysis, where 97 percent of the common variance was explained by the first two factors. Using the same rules to define variables above, two variables (french fries and chips) were added to the factor analysis for the discretionary fats module. This resulted in a 10-variable module, with the following variables: butter/margarine on vegetables, skim milk, butter/margarine on bread/pasta/tortillas, fried poultry, skin poultry, trim fat from red meat/pork, drain fat when cooking hamburger, type of fat used when cooking, french fries, and chips/cheese puffs/pork rinds. Unlike the other eight variables, the french fries and chips/cheese puffs/pork rinds variables were past week consumption variables, transformed by taking the square root. Since the other variables have larger values for healthy eating habits, and eating these foods is considered unhealthy, the negative of the given values was used to facilitate interpretation. Adding these two variables has improved the Kaiser's Overall MSA to 0.67, with the lowest individual MSA for the type-of-cooking-fat variable (0.61). A common factor model with four factors was used; four eigenvalues accounted for 99 percent of the common variance. One rotation of the factor pattern using a principle factor analysis is given in Table III.17.

The first factor is similar to that obtained when fries and chips were not included: a measure of using butter or margarine, with high loading for butter on vegetables and butter on bread, and a moderate loading for type of cooking fat (which could be butter). The second factor is also clear—indicating the foods that one might eat at a fast-food restaurant (fried poultry, french fries, chips). The third factor seems to be a measure of how one attempts to reduce fat intake during food preparation or at the table (skin the chicken or not, trim fat from red meat or not). The

fourth, as with the third factor obtained when fries and chips were not included, is a measure of the actions one takes with extra fat when cooking meats.

TABLE III.17

ROTATED FACTOR PATTERN, DISCRETIONARY FATS
INCLUDING FRIES AND CHIPS

Variable	Factor 1	Factor 2	Factor 3	Factor 4
Butter on vegetables	0.64	0.16	0.23	0.00
Skim milk	0.14	0.02	0.26	0.06
Butter on bread	0.64	0.18	0.10	0.10
Fried poultry	0.09	0.44	0.31	-0.05
Skin poultry	-0.07	0.09	0.56	0.19
Trim fat from red meat	-0.00	0.09	0.39	0.48
Drain fat from cooking hamburger	0.06	0.07	0.10	0.57
Type of cooking fat	0.20	0.01	-0.04	0.00
French fries	0.08	0.63	0.00	0.07
Chips/cheese puffs/pork rinds	0.24	0.51	0.06	0.28

vi. Sodium/Salt Intake

As with the whole-grain foods module, there are only three variables in the salt and sodium module, which consists of questions about chips/cheese puffs/pork rinds, crackers/pretzels, and salt as seasoning on food. The chips and crackers variables are based on the past week's consumption, and the salt as seasoning variable has a four-level ordinal response: "usually," "sometimes," "rarely," and "never," with the highest score given to "usually" to correspond to the direction of levels in the other two variables for ease of interpretation. The Kaiser's Overall MSA is 0.50, meaning that the common factor model is really not appropriate for this set of variables (the individual MSAs were all approximately 0.50). Nevertheless, we provide the factor loadings for two factors. Two eigenvalues explained all of the common variance. One rotation of the factor pattern using a principle factor analysis is given in Table III.18.

TABLE III.18

ROTATED FACTOR PATTERN FOR SODIUM/SALT INTAKE

Variable	Factor 1	Factor 2
Chips/cheese puffs/pork rinds	0.34	0.31
Crackers/pretzels	0.04	0.43
Salt as seasoning	0.45	0.03

The variables do not cluster together in any obvious way; the two factors describe chips and salt and salty snacks, respectively.

f. Factor Analysis Results for Supplemental Modules

The individual modules include the weight control module (with and without binary variables), shopping, attitudes, food availability, and physical activity.

i. Weight Control

The original definition for weight control includes nine variables. Five refer to consumption of specific foods: fruit as dessert, fruit and vegetables as snacks, sweetened fruit drinks, soda, and fast food. The other four are behavior variables: change to a healthier diet in the past 12 months, attempts to lose weight in past 12 months, snack or eat meal in front of television, and eat breakfast. To facilitate interpretation, the levels of the variables (questions) were recoded so that smaller numbers correspond to attempts to control weight and larger numbers correspond to no attempt to control weight.

The variables for sweetened fruit drinks, soda, fast food, and eating breakfast are all per-week consumption variables. As with other per-week consumption variables, a square root transformation is used to more closely approximate a normal distribution, with outliers removed as discussed in Section b. Since smaller numbers correspond to attempts to control weight, the transformed values from sweetened fruit drinks, soda, and fast food can all be taken directly. For

the sake of interpretation, however, the negative of the transformed breakfast variable will be used, since larger values (generally with maximum of seven) are considered conducive to weight control.

The variables for fruit as dessert, fruit and vegetables as snacks, and snack or eat meal in front of television have an ordinal response. As noted earlier, an ordinal response is problematic for the multivariate normal assumption, since we are required to assume the same distance between levels, and too few levels are available to approximate a normal distribution very well, particularly if any skewness occurs. For the fruit-as-dessert variable, two levels correspond to a real attempt to lose weight: eat fruit when eating dessert, or not eating dessert at all. Among respondents who usually eat fruit for dessert or do not eat dessert at all, it would be difficult to determine which should have higher value in terms of losing weight. Since so few respondents (only three) do not eat dessert, these two levels will be combined and set to the value "1," and the other levels will be assigned in increasing order from there. The fruit-and-vegetables-as-snacks variable will also be assigned with "usually" taking the value of "1" and other levels assigned in increasing order after that. However, if one usually snacks or eats meals in front of the television, this is considered detrimental to weight control, so for interpretation's sake "usually" will be assigned a value of "4" and the other levels assigned in decreasing order from there.

The variables for behavioral changes in the past year (change to healthier diet, attempting to lose weight) are binary variables and therefore do not even remotely resemble normally distributed variables. These variables could provide misleading results in the factor analysis for this reason; however, as an approximation, they will be included for this module. The code for "yes" will be set to "1" and the code for "no" set to "2."

For these data, the Kaiser's Overall MSA was only 0.56, which is rather low, particularly for the number of variables included. Recall that the inclusion of the binary variables could be considered problematic, and it could be argued that these binary indicators are not like the other variables. Indeed, the individual MSAs for the "switch to a healthier diet" and the "trying to lose weight" indicator are 0.53 and 0.52, respectively, so we may want to consider adjusting the set of variables used. A three-factor model was considered for these data, the loadings for which are presented in Table III.19.

TABLE III.19

ROTATED FACTOR PATTERN FOR WEIGHT CONTROL VARIABLES

Variable	Factor 1	Factor 2	Factor 3
Fruit as dessert	0.03	0.09	0.48
Fruit/vegetables as snacks	0.10	0.12	0.46
Sweetened fruit drinks	0.11	0.26	0.15
Soda	0.07	0.43	0.16
Fast food	0.02	0.45	0.08
Switched to healthier diet	0.69	0.11	0.06
Attempted to lose weight	0.71	0.09	0.00
Snack or eat meals at TV	0.05	0.35	-0.11
Eat breakfast in the morning	-0.03	-0.02	0.30

In spite of the issues mentioned in the previous paragraphs, some useful patterns are evident in these data. The first factor is a measure of actions in the past 12 months that were intended to improve health; whether these are borne out in the past-week data is less clear. The second factor is a measure of unhealthy eating habits: drinking soda, eating fast food, snacking or eating in front of the television, and, to a lesser extent, drinking sweetened fruit drinks. The third factor is a measure of healthy eating habits: eating fruit as dessert, eating fruit and vegetables as snacks, and, to a lesser extent, eating breakfast each morning. A number of clusters are apparent in the data, indicating some redundancy. The two binary variables are very close together across

all three factors, indicating a high degree of similarity, as are the two variables relating to eating fruit (eating fruit as dessert and eating fruit or vegetables as snacks). Although less evident than the other two clusters, the loadings associated with fast food, sweetened fruit drinks, and soda are also somewhat close together in value. Similar results were evident with ML estimation.

ii. Shopping Behaviors

The shopping behaviors module consists of three variables with the four-level ordinal response used earlier (usually, sometimes, rarely, never): plan meals before shopping, prepare list before shopping, and look at nutrition labels before buying product. As with other three-variable factor analyses, there is a limit to how much a factor analysis can accomplish. The Kaiser's Overall MSA is 0.52, meaning that the common factor model is really not appropriate for this set of variables. (The planning meals and shopping list variables were lowest with MSA values of 0.51.) Nevertheless, we provide the factor loadings for two factors. Two eigenvalues explained all of the common variance. One rotation of the factor pattern using a principle factor analysis is given in Table III.20.

TABLE III.20

ROTATED FACTOR PATTERN FOR SHOPPING HABITS VARIABLES

Variable	Factor 1	Factor 2
Plan meals before shopping	0.52	0.10
Make list before shopping	0.51	0.15
Read labels before buying product	0.06	0.26

The first factor is apparently a measure of preparations made for shopping; the second is less clear, but points to what is left over, with no loadings very high. This points to a possible redundancy, since the first two variables are clustered very close together across both factors.

iii. Attitudes

The attitudes module is a bit different from the others, since the scale used for responses differs. In particular, all of the responses are binary, which is a substantial departure from the multivariate normality assumption. Therefore, any conclusions obtained from this module must be tempered with the notion that the multivariate normality assumption is severely violated. The responses are all "agree/disagree," with six variables: have healthy diet, healthy diet is too expensive, too busy for healthy diet, healthy food tastes bad, family thinks healthy food tastes bad, and born to be fat or thin. The Kaiser Overall MSA for these data is rather low, at 0.57, with a very low individual MSA for the variable for born to be fat or thin (0.38). This MSA level is extremely low, indicating that the common factor model may not be appropriate with this variable included. Two eigenvalues explained 86 percent of the common variance. A two-factor model was considered for these data, the factor loadings for which are given in Table III.21.

TABLE III.21

ROTATED FACTOR PATTERN FOR ATTITUDES VARIABLES

Variable	Factor 1	Factor 2
Considers diet healthy	-0.51	-0.16
Considers healthy food too expensive	0.31	0.02
Too busy to prepare/eat healthy food	0.55	0.02
Considers healthy food to taste bad	0.21	0.49
Family thinks healthy food tastes bad	0.21	0.36
Considers fatness/thinness to be inborn, cannot be controlled	-0.10	0.24

The first factor is a measure of individuals who could admit an unhealthy diet, and would change it if they had more time or money. The second factor is a measure of individuals who do not necessarily admit an unhealthy diet, but would have no inkling of changing their diet even if they had time or money; their choice of healthy or unhealthy food is based on taste. There is also

a tendency among individuals with high values for this factor to believe that fatness or thinness cannot be controlled. There is some redundancy apparent, particularly with the clustering of the taste variables. In the ML analysis with two factors, two eigenvalues explained 87 percent of the common variance. Given the extremely low MSA for the variable for born to be fat or thin, this analysis was redone without that variable. Removing this variable substantially increased the Kaiser's Overall MSA, with a value of 0.60 (the lowest individual MSA was now a more respectable 0.58). The proportion of the common variance explained by the first two eigenvalues increased to 93 percent. As Table III.22 shows, the interpretation of the factor loadings does not change appreciably without this variable.

TABLE III.22

ROTATED FACTOR PATTERN FOR ATTITUDES VARIABLES
(Q48 ON "BORN TO BE THIN OR FAT" REMOVED)

Variable	Factor 1	Factor 2
Considers diet healthy	-0.41	-0.33
Considers healthy food too expensive	0.34	0.02
Too busy to prepare/eat healthy food	0.54	0.15
Considers healthy food to taste bad	0.12	0.49
Family thinks healthy food tastes bad	0.06	0.46

iv. Availability

The availability module includes nine variables, each with a four-level ordinal response (usually, sometimes, rarely, never). All of them refer to the availability in the home of various foods. The foods include fruit, dark green vegetables, orange vegetables, chips/cheese puffs/pork rinds, candy, skim milk, sweetened drinks and soda, whole-wheat bread, and whole-grain cereal. The Kaiser's Overall MSA is 0.68, which is a fair indication that the common factor model is appropriate for these data; the lowest individual MSA is associated with skim

milk (0.60). A three-factor model was used; three eigenvalues explained 96 percent of the common variance. The loadings for these three factors are given in Table III.23.

TABLE III.23

ROTATED FACTOR PATTERN, AVAILABILITY OF FOODS

Variable: Available in Home	Factor 1	Factor 2	Factor 3
Fruit	0.58	0.07	0.07
Dark green vegetables	0.57	-0.07	0.13
Orange vegetables	0.51	-0.10	0.16
Chips/cheese puffs/pork rinds	-0.03	0.57	-0.09
Candy	-0.08	0.56	-0.02
Skim milk	0.04	-0.05	0.40
Sweetened drinks/soda	0.01	0.47	-0.08
Whole-wheat bread	0.29	-0.18	0.37
Whole-grain cereal	0.31	-0.03	0.40

This rotation of the factor pattern shows three clearly defined factors. The first is a measure of healthy fruit and vegetables in the home, the second is a measure of unhealthy items available in the home (chips, candy, and soda), and the third is a measure of healthy items that are not fruit and vegetables (skim milk, whole-wheat bread, and whole-grain cereal). Two clear clusters are apparent in the data, pointing to some redundancy in the questions. The loadings for fruit, dark green vegetables, and orange vegetables are very similar to each other; the loadings for chips/cheese puffs/pork rinds and candy are also very similar to each other. Even whole-wheat bread and whole-grain cereal are similar across two of the factors. The ML estimate provided similar results, where three eigenvalues also explained 96 percent of the common variance.

g. Summary

As an alternative method for measuring the relationship between variables within a module, one could use Cronbach's alpha for continuous responses[7] (Cronbach 1951, Nunnally 1951). However, factor analysis is actually more appropriate for this task. Cronbach's alpha (and the KR-20) are both used to establish the consistency of the question responses for a single latent variable, whereby a number of questions are asked in different ways about the same attribute. If these items are "parallel" (of the same level of "difficulty" with regard to the latent trait), then Cronbach's alpha is an unbiased estimator of reliability (Cronbach 1951). If we wanted to create a scale for some construct, the Cronbach's alpha would be useful for determining whether the questions used are appropriate for that single scale. For example, a vegetable eating-scale would be based only on the vegetable questions in the fruit and vegetable module, and not fruit, potatoes, or anything else in that module, and Cronbach's alpha would be calculated only for the variables that went into the calculation of that scale.

If however, more than one latent variable exists in particular module, which is often the case, then many Cronbach's alphas would have to be calculated to decipher what those latent variables are. This can be determined with only one or two factor analyses. For example, for the fruit and vegetables module including french fries, the factor analysis indicated that underlying factors existed related to (1) healthy foods vs. non-healthy foods, and (2) green vegetables vs. potatoes. Removing French fries changed the description of the factors, but there were still two factors. A single calculation of Cronbach's alpha would not provide this level of detailed information. It would only indicate that the questions in this module do not indicate a single latent variable exists. The calculated value for Cronbach's alpha for this module was 0.58, which is less than the rule of thumb value (0.7) given by Nunnally (1978). Removing french fries

[7] For binary responses, we would use Kuder-Richardson 20 (KR-20) (Nunnally 1978).

improved Cronbach's alpha to 0.68, which is still less than the rule of thumb value. It should not be surprising that as long as more than one factor is required to describe the variance, the Cronbach's alpha value would indicate that the questions in the module do not necessarily measure the same latent variable (or that the assumption of "parallel" is violated, in which case the alpha is a lower bound on reliability.) Therefore, the factor analysis used in this research study provides additional and relevant information to aid our understanding of the relationships between complex eating behaviors.

The factor analysis findings isolate questions that are redundant and could potentially be removed from selected behavior modules. The first redundancy is in the high-protein foods module, in which fish and beans are clustered closely together across three factors. The second redundancy is in the weight control module, in which questions related to eating fruit as dessert and fruit and vegetables as snacks were correlated closely in all factors. The third, fourth, and fifth redundancies are in the availability of foods topic module, in which there are redundancies between fruit, dark green vegetables, and orange vegetables; chips/cheese puffs/pork rinds and candy; and whole-wheat bread and whole-grain cereal.

Although there are other redundancies, these should be interpreted with more caution. For example, in the weight control module, switching to a healthier diet and attempting to lose weight are clustered closely, but they are binary variables and thus do not adhere to the multivariate normality assumption, lending doubt to interpretation. However, there are other means to measure the association between two binary variables, the simplest of which is a chi-square test. In that test, a highly significant chi-square value of 104 supports the result from the factor analysis: the two questions are closely related and could be considered redundant. In the shopping behaviors module, meal planning and making a list before shopping cluster closely together for both factors. However, with a low Kaiser's Overall MSA value (only three variables

were used), there is a limit to how meaningful this finding is. In the attitudes module, questions related to the taste of healthy food (personal taste or that of the family) are clustered in both factors. However, attitudes variables are binary, again violating multivariate normality assumption, so this result should be interpreted cautiously. Here again, the chi-square test supports the result from the factor analysis: a highly significant chi-square value of 24 indicates the two questions are closely related and could be considered redundant.

6. Administration Times

We timed sections of the instrument to assess administration time and determine modules of questions where response times may be longer than needed. In general, the first set of questions may take longer to administer than later sections of similar length, because the interview proceeds more quickly as the respondent becomes familiar with the types of questions and the response categories. Table III.24 indicates mean, median, and range of administration times for each section of questions.

The total average administration for all of the modules was 22.3 minutes, which was about half a minute shorter than the projected estimate from the cognitive testing phase (cognitive testing estimates not shown). The total administration time of the core instrument, which includes the introduction/confidentiality statement, intake modules, and demographics, had a mean of 15.2 minutes, close to the target of 15 minutes. The longest section was the demographics (mean = 3.7 minutes). Each of the four intake modules ranged between 1.6 and 2.7 minutes on average. The dairy, calcium, and grain module was the longest (mean = 2.7 minutes), followed by the meat and bean intake (mean = 2.5 minutes). Each of the attitudes, behavior, and physical activity module times ranged between 1.7 and 1.9 minutes on average. The food availability module (mean = 1.9 minutes) was projected to take an average of 2.5

minutes because a question was added to this module after the cognitive testing phase; however, we overestimated the total time based on the additional question.

TABLE III.24

MEAN, MEDIAN, AND RANGE OF ADMINISTRATION TIMES OF CORE INSTRUMENT AND INDIVIDUAL MODULES

Questionnaire Section[a]	Topic	Number of Questions	Mean Time (Minutes)	Median Time (Minutes)	Administration Time Range (Minutes)
	Core Instrument				
Introduction[b]	Acknowledgement of Confidentiality Statement[c]	--	2.8	3	2-4
Section 1	Fruits and vegetables	11	1.6	1	1-10
Section 2	Dairy and other calcium intake; Grain intake	10	2.7	3	1-10
Section 3	Meat and bean intake	11	2.5	2	1-6
Section 4	Discretionary calories and salt	7	1.9	2	1-11
Section 9	Demographics	15	3.7	4	1-8
Total Core	Core instrument including required introduction	54	15.2[d]	15	--
	Attitude and Behavior Supplemental Modules				
Section 5	Shopping behaviors; Attitudes	9	1.7	2	1-5
Section 6	Food availability	9	1.9	2	1-7
Section 7	Weight control	5	1.7	2	1-5
Section 8	Physical activity	6	1.8	2	1-6
	Core Instrument and Attitude and Behavior Supplemental Modules				
Total Core Plus All Supplemental Modules	Core instrument and supplemental modules	**83**	**22.3**	**23**	**--**

[a]Sections are numbered in the order that they were administered in the field test but are grouped to separate the core instrument (introduction, intake sections, and demographics) from the supplemental modules.
[b]The Acknowledgement of Confidentiality Statement was not timed separately within section 1, so we used a sample of recorded interviews to determine average administration time of the introduction.
[c]The Acknowledgement of Confidentiality Statement is included because OMB requires it. Although it is discussed in the results, we will not recommend changes to this statement.
[d]Total mean and median times for the core and core plus supplements are estimates because sections 1-4 and the demographics questions were not asked in that exact sequence.

7. Behavioral Coding Results

a. Approach to Interpreting Behavioral Coding

Behavioral coding of the telephone interviews allowed us to systematically analyze the verbal behavior of respondents and interviewers. For the respondent, behavioral coding identified requests for repeats of the question, requests for clarification, interruptions of the interviewer, uncertainty in the response, or uncodeable responses. For the interviewer, behavioral coding identified misread questions and responses, skipped questions, and how probing was conducted. The results of the behavioral coding were used to examine the following issues:

- Any possible respondent lack of understanding of what was being asked or formulating or selecting the correct response category
- Respondent misunderstanding of questions, including question content, wording, flow, and reference period; respondent problems in recalling information
- Awkward administration; difficult to read aloud
- Whether questions or response categories were too long or wordy

Each of these issues was identified through the use of particular codes, as shown in Table III.25.

TABLE III.25

CODES THAT CORRESPOND TO PARTICULAR PROBLEMS WITH QUESTIONS

Problem with Question	Codes		
Difficulty understanding the question or response categories	R: Requested clarification	R: Requested repeat	R: Uncodeable response
Misunderstood; difficulty recalling information	R: Expressed uncertainty	R: Uncodeable response	
Awkward administration; difficult to read aloud	I: Misread questions (major or minor errors)	I: Skipped question	I: Inappropriate probing, particularly under-probing
Question or response categories too long	R: Interrupted interviewer	R: Requested clarification	

Although there are limitations to behavioral coding, because findings do not fully capture all of the questionnaire problems, other issues unrelated to the questionnaire may contribute to problems. For instance, respondents who requested a repeat or clarification of the question may have been distracted by background activity or noise. Over-probing by interviewers on some questions may point to the need to revise a question or conduct additional training. Nevertheless, behavioral coding does provide a systematic way to analyze interactions between interviewers and respondents and provides useful insights as to particular problems with questions.

b. Behavioral Coding Results

The table in Appendix B displays frequencies of the respondent and interviewer codes, question by question. Overall, the most common behavior codes included uncodeable responses (28 percent of all recorded codes), interviewer probes such as inappropriate probing (25 percent), and requests for clarification (19 percent).

Based on behavioral coding, the following 12 questions were identified for improvement because there were codes for more than 20 percent of respondents. In other words, among the 62 respondents, questions were re-examined if more than 12 respondents had a recorded code. Except for questions 65 and 78e, these questions were also tied to interviewer-related codes for more than 20 percent of interviewers.

Q2	Q49
Q4	Q62
Q5	Q65
Q12	Q75
Q14	Q78a
Q33	Q78e

Using the results of behavioral coding, we have identified why a question or set of questions had recorded codes in more than 20 percent of respondents. General results are discussed below, and specific quantitative information can be found in the table in Appendix B.

i. Questions 2, 4, and 5

Q2 Please think about the last week, that is, the past seven days, how many times did you eat canned, dried, fresh, or frozen fruit? Please do not include fruit juice.

Q4 In the last week, that is, the past seven days, how many times did you drink 100% fruit juices, not counting fruit flavored drinks?

Q5 In the last week, that is, the past seven days, how many times did you eat vegetables of any kind? Please include canned, fresh, or frozen vegetables.

Questions 2, 4, and 5 had requests for clarification, uncodeable responses, and inappropriate probing. These codes indicate a number of factors, such as difficulty understanding the question and/or the response category, as well as awkward administration. However, we expect a certain degree of respondent "training" as they learn how to answer food frequency questions. Interviewers were also contending with respondent lack of understanding. Typical codes were a result of respondent clarifications such as "how many times?" or "for my kids?" as well as uncodeable responses like "every day" or "not usually" in which the interviewer would have to probe for an appropriate response. An example of awkward administration was when the interviewer read the probe as a part of the question instead of as needed. Despite recorded problems for both respondents and interviewers, these first questions are intended to orient the respondent to how the questionnaire is implemented and how the respondent is expected to respond.

ii. Question 12

Q12 In the last week, that is the past seven days, how many times did you drink plain, chocolate, or flavored milk as a beverage? Please do not include milk in coffee or tea.

Question 12's requests for clarification and uncodeable responses indicate difficulty understanding the question and/or response categories. Requests for clarification involved the type of milk or how the milk was consumed (as a beverage versus using for another purpose).

Uncodeable responses were a result of responses such as “I drink milk a lot” and “I can’t stomach milk,” as well as responses such as “every day,” in which interviewers probed further.

iii. Question 14

Q14 When you use milk, how often is it 1%, skim, or fat-free milk?

Requests for clarification and uncodeable responses indicate difficulty understanding the question and/or response categories. One major reason for clarification requests and uncodeable responses was that this question was the first in a transition from answering in number of times per week to the four-point scale (usually, sometimes, rarely, and never). The other reason for uncodeable responses was that respondents would offer how often they consumed 2% milk instead of 1% or skim milk. They would also clarify with the interviewer the type of milk, asking things such as, “You said skim?”

iv. Question 33

Q33 In the last week, that is the past seven days, how many times did you drink fruit-flavored drinks like lemonade, Kool-Aid, Hi-C, fruit punch or sweetened iced tea? Please do not include diet drinks when thinking about your answer.

Question 33 had requests for clarification, as well as uncodeable responses. In this case, requests for clarifications could have been related to the long list of food items and a statement about what not to include. This question had a length of three lines, whereas most intake questions had two lines. In addition, the last sentence of the question talked about diet drinks, which takes a separate thought pattern than fruit-flavored drinks and iced tea. Some of the clarification questions included, “sweet tea—is that what you mean?” and “did you say iced tea?” Uncodeable responses were related to the frequency with which respondents consumed these beverages not falling into the number of times per week category, including, “I don’t drink Kool-Aid. I had fruit punch once,” and “I drink a half gallon of iced tea a day.”

v. Question 49

Q49 Do you usually, sometimes, rarely, or never have fruit available at home? Please include canned, dried, fresh, and frozen fruit.

Question 49 had requests for clarification and repeats and uncodeable responses, as well as minor misreads of the question. These clarifications and uncodeable responses were related to lack of understanding of the response categories because this question was the first in a transition from answering with "agree" and "disagree" to using the four-point scale (usually, sometimes, rarely, and never). Minor misreads of the question were related to the interviewer re-reading the question's response categories, which was a reaction to the clarifications that respondents had requested. Uncodeable responses were related to respondents who used the former response categories (agree/disagree). For example, respondents may have said they disagree or they "always have fruit available," instead of usually, sometimes, rarely, and never response categories.

vi. Question 62

Q62 In the last week, that is the past seven days, how many times did you eat breakfast or a meal within two hours after you woke up?

Question 62 had uncodeable responses and requests for clarification, indicating a lack of understanding of the question's response categories. Most uncodeable responses were due to the change in response categories (number of times per week) from the question before (usually, sometimes, rarely, or never). For instance, respondents answered "usually" or "rarely." The clarifications were also related to the change in response category, as respondents clarified "how many times?" and "in the past seven days?"

vii. Questions 65, 75, 78a, and 78e

Questions 65 to the end were part of physical activity and sociodemographic modules and were not subjected to cognitive testing. We were asked to retain these questions because the

physical activity module and sociodemographics module were standard questions used and previously tested with low-income populations. We did record problems with respondent understanding of the questions, which may have been related to the higher reading level or the request for more sensitive information.

8. Summary

Together, the analytic procedures discussed above allowed us to assess the overall performance of the field test instrument and pointed to areas where further revision could potentially improve performance and/or elicit additional specific information on dietary behaviors. Although the results from behavioral coding and the interviewer observations were the most straightforward, other analytic procedures helped to reinforce findings and also brought issues to our attention. Overall, the issues identified can be grouped into four categories: (1) those related to response categories common to several questions, (2) those specific to individual questions, (3) those related to transitions between questions, and (4) those related to topics not covered by questions.

a. Issues with Various Types of Response Categories

The following list summarizes response-related issues:

- Overall, recorded "per week" responses far outnumbered "per day" responses on questions related to frequency of intake. This is not surprising, since the questions ask about the last week's intake, but it may suggest that respondents need more help in understanding that they have the choice of answering in units of "per day" or "per week," especially for behaviors that may occur daily. We also suggest enhancements to the instrument to aid interviewers in recording units as "per day" or "per week."
- Some common responses related to methods of improving diet and losing weight (question 60) did not have pre-specified response categories. These responses included drinking more water, increasing whole-grain consumption, eating healthier in general, and reducing portion sizes.

- Common responses to nutrition class locations (question 78c) included medical/health provider/diabetes program and school/fitness program, which were not pre-coded categories.
- Some respondents said they were not on FSP when asked how long they had been participating (question 78a), when they had recently started in the past few days. Respondents who recently joined were coded as "Other Specify" by interviewers. We suggest adding an interviewer note to code less than one month as one month.

b. Issues with Individual Questions

Problems with specific questions may include the need to clarify certain words or terms in the question, unclear wording, and question length. The following list includes question-related issues observed in the field test:

- Respondents sometimes requested clarification as to whether dark green vegetables included green beans and peas (question 8).
- Respondents sometimes referred to 2% and whole milk when they were asked about intake of 1% and fat-free milk (question 14).
- Respondents sometimes required extra clarification and provided uncodeable responses when they were asked a lengthy question on sweetened beverage consumption (question 33).

c. Transition Between Questions

Transitions between questions with different response categories (for example, moving from a response with the number of times in the last week to a four-point scaled response of usually, sometimes, rarely, never) apparently caused confusion in several sections of the questionnaire.[8] For instance, the first in a series of questions with different response categories required clarification and sometimes yielded uncodeable responses, or the response category did not fit the categories on the questionnaire form. This was true in multiple places in the questionnaire.

[8] The transition issues did not surface during cognitive testing since the focus is on each individual question and there is more time for the interviewer to read and wait for the respondent to answer in a face-to-face interview.

d. Topics Not Covered by Questions

- The question on weight did not take into account whether a woman was pregnant, based on interviewer observations that some respondents volunteered their pregnancy status in responding to this question (question 70).

- Interviewers raised the concern that respondents may have reported intakes that were not typical of their usual intake behaviors and suggested adding a question to account for this.

IV. RECOMMENDATIONS FOR THE FINAL QUESTIONNAIRE

A. SUGGESTED CHANGES TO THE QUESTIONNAIRE

Most questions in the instrument performed well, and we recommend that they be retained. Appendix A shows the original questionnaire, and Appendixes C and D provide our recommended changes for final questionnaire with and without tracked changes, respectively. These questionnaires provide a visual representation of suggested changes based on the evidence gathered in the field test. Table IV.1 identifies the questions we propose to change and the reasons that we have revised them in the final instrument (see Appendixes A, C, and D).

There are two cases in which adding a new question may improve information needed to interpret responses. These include a question on pregnancy status to inform weight data and a question on the interviewers' perceptions of the respondents' ability to respond to dietary intake questions. Most suggestions involve changes to the order of questions and minor rephrasing of questions or response categories. Additional coding categories appear with respect to question 60 (dietary improvements and efforts to lose and maintain weight) and question 78c (sources of nutrition classes). Retaining these questions would involve expanding the list of responses, requiring additional interviewer instruction on how to code responses during the administration of the questionnaire, and it would increase administration time. Whether or not additional response categories are added, these questions require more time for the interviewer to code during the interview or for researchers to back-code “Other Specify” responses at a later stage in data processing. Finally, we suggest that a question be added on current receipt of WIC benefits, because this instrument is to be used with FSNE and FSP participants, many of who are female and may also be participating in the WIC program.

TABLE IV.1

SUGGESTED CHANGES AND ADDITIONS TO QUESTIONS
AND EVIDENCE FOR THE CHANGES

Question(s) on the Field Test Instrument (see Appendix A)	Suggested Change to Order, Phrasing, or Responses/ Insert new	Evidence for Suggested Changes		
		Behavioral Coding	Response Variation	Interviewer Observations
First I'd like to ask you about different foods you eat. [Introductory statement]	Phrasing			Lacked transition from confidentiality statement to first intake question.
3, 10, 11, 14, 21, 23, 24, 26, 37, 61, 62	Order	Lacked transition with changing response categories.		Lacked transition with changing response categories.
2, 4, 5, 6, 7, 8, 9, 12, 13, 15, 16, 17, 18, 19, 20, 22, 25, 28, 29, 30, 31, 32, 33, 34, 35, 36, 39, 62	Responses		Most responses recorded as "per week."	
8	Phrasing			Respondents unclear as to whether include green starchy vegetables.
12	Phrasing			Respondents interpret *drinking* and *using* milk differently.
14	Phrasing (or Insert New)	Respondents clarified whether 2% was included.		Respondents often talked about 2% milk.
33	Phrasing	Length of question spurred clarification.		
60	Responses		Common categories emerged in "Other Specify."	
62	Phrasing		Responses reflected having breakfast more than 7 times a week.	
--	Insert new			Interviewers raised the concern that last week's intake was not typical for the respondent.

Question(s) on the Field Test Instrument (see Appendix A)	Suggested Change to Order, Phrasing, or Responses/ Insert new	Evidence for Suggested Changes		
		Behavioral Coding	Response Variation	Interviewer Observations
--	Insert new			Respondents gave weight and some said they were pregnant.
78a	Responses		New Other Specify response emerged.	
78c	Responses		New Other Specify responses emerged.	
--	Insert new[a]			

[a]We suggest adding a question on receipt of WIC benefits.

B. SUGGESTED QUESTIONS TO BE DROPPED FROM THE QUESTIONNAIRE

We identified only one question for potential removal, should reducing administration time be a consideration. Although the following questions performed well overall, they (1) were identified as redundant in the factor analysis, and/or (2) took longer to administer. Questions 29 (fish intake) and 32 (bean intake) were redundant with each other in the factor analysis when factors appeared to be measures of "less healthy" and "more healthy" protein sources. The meat and bean intake module was longer than other intake modules. One of these questions could be dropped for time concerns, at the preference of ERS. However, these questions may be important to retain since they represent very different protein sources in the diet.

C. FUTURE APPLICATIONS OF THE INSTRUMENT

This is one of the few questionnaires that has been field tested on a sizable and racially and ethnically diverse sample of the FSP population (n = 453) across four distinct geographic regions in the United States. Therefore, our findings on the questionnaire's administration and understandability of questions provide us with some meaningful insights on how the general

non-elderly female FSP population might understand and respond to these questions. The final questionnaire (see Appendix D) is expected to foster smooth administration of the instrument by interviewers and yield responses that are clearly understood. However, we cannot assume that the instrument will perform well with the overall FSP population, as the respondents from the field test were drawn from a convenience sample and received incentives to participate in the telephone interview. In addition, although our preliminary analyses suggest internally consistent responses among questions of similar content, the instrument requires further reliability testing during a later phase.

When a more formal assessment of the external validity and reliability of the final survey instrument is conducted, final decisions about which questions to include in the core can be made in concert with priorities for what the core is intended to measure. For example, should the core questions reflect the best indicators or proxies of dietary quality and adherence to the dietary guidelines, as assessed by the Healthy Eating Index score? Or should the core also include questions on dietary behaviors or practices that are important for nutrition education or that fall outside the dietary guidelines (for example, eating at fast-food places)?

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APPENDIX A

DIETARY BEHAVIOR QUESTIONNAIRE USED FOR THE PILOT TEST

MPR Reference No.: 6191-500

MATHEMATICA
Policy Research, Inc.

Dietary Behavior Questionnaire

August 25, 2006

MPR ID:	|__|__|__|__|__|__|__|__|
Interviewer ID:	|__|__|__|__|__|__|
Date:	|__|__| / |__|__| / |__|__|

Paperwork Reduction Act Statement

A federal agency may not conduct or sponsor, and a person is not required to respond to this collection of information, unless it displays a currently valid OMB control number. Sample members' obligation to reply to this survey is voluntary. Public burden for this survey is estimated to average 23 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the necessary data, and completing and reviewing the collection of information.

Privacy Act Statement

In compliance with the Privacy Act of 1974, the following information is being provided to you: The contractor, Mathematica Policy Research, Inc., will use the information you provide to develop a dietary questionnaire for the U.S. Department of Agriculture. The information you provide will not affect your eligibility for any federal, state, or local government program or receipt of benefits from such programs. The information you provide will be kept confidential and the answers you give will not be identified as yours in any published material.

START TIME: |__|__|:|__|__| AM 1
PM 2

INTRODUCTION

1. My name is [NAME] and I'm from Mathematica Policy Research, Inc., a research company in Princeton, New Jersey. We are doing a study for the U.S. Department of Agriculture to learn more about the kinds of food people eat and how they decide what to eat.

   Your participation in this study is voluntary and will not affect any benefits or services you or your family receive now or in the future. The interview will last about 20 minutes and we will mail you $20 when you complete the survey.

   This interview may be recorded for quality assurance purposes. Before we begin, I'd like to read a statement that explains that everything you tell me is completely confidential. **(READ TEXT FROM CONFIDENTIALITY ACKNOWLEDGEMENT FORM.)**

   First, I'd like to ask about different foods you eat.

FRUIT INTAKE

2. Please think about the last week, that is, the past seven days, how many times did you eat canned, dried, fresh, or frozen fruit? Please do not include fruit juice.

   |__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

   DAY 1
   WEEK 2
   NEVER EAT FRUIT .....n → **GO TO Q.4**
   DON'T KNOW .....d
   REFUSED .....r

3. When you eat dessert how often is it canned, dried, fresh, or frozen fruit?

Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER 4
DON'T EAT DESSERT ..... n
DON'T KNOW ..... d
REFUSED ..... r

4. In the last week, that is, the past seven days, how many times did you drink 100% fruit juices, not counting fruit flavored drinks?

PROBE (AS NEEDED): Fruit-flavored drinks include drinks like lemonade, Kool-Aid, Hi-C, or fruit punch.

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER DRINK 100% JUICE ..... n
DON'T KNOW ..... d
REFUSED ..... r

VEGETABLE INTAKE

5. In the last week, that is, the past seven days, how many times did you eat vegetables of <u>any</u> kind? Please include canned, fresh, or frozen vegetables.

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT VEGETABLES ..... n → **GO TO Q.12**
DON'T KNOW ..... d
REFUSED ..... r

6. In the last week, how many times did you eat baked, boiled, or mashed potatoes? Please do not include french fries.

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1

WEEK 2

NEVER EAT THESE KINDS OF POTATOES ..... n

DON'T KNOW ..... d

REFUSED ..... r

7. In the last week, that is, the past seven days, how many times did you eat french fries or fried potatoes?

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1

WEEK 2

NEVER EAT FRENCH FRIES ..... n

DON'T KNOW ..... d

REFUSED ..... r

8. In the last week, that is, the past seven days, how many times did you eat dark green vegetables like broccoli, dark green leafy lettuce, kale, Romaine lettuce, spinach, or greens? Please include canned, fresh, and frozen vegetables.

PROBE: Dark green vegetables also include bok choy, collard, mustard, and turnip greens, mesclun, and watercress.

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1

WEEK 2

NEVER EAT DARK GREEN VEGETABLES ..... n

DON'T KNOW ..... d

REFUSED ..... r

9. In the last week, that is, the past seven days, how many times did you eat orange vegetables like carrots or sweet potatoes?

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT ORANGE VEGETABLES ..... n
DON'T KNOW ..... d
REFUSED ..... r

10. How often do you put butter or margarine on your cooked vegetables? Would you say, usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

11. How often do you eat fruit or vegetables as snacks? Would you say, usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

TIME: |__|__|:|__|__| AM 1
PM 2

DAIRY AND OTHER CALCIUM INTAKE

12. In the last week, that is the past seven days, how many times did you drink plain, chocolate, or flavored milk as a beverage? Please do not include milk in coffee or tea.

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER USE MILK ..... n → **GO TO Q.15**
DON'T KNOW ..... d
REFUSED ..... r

13. In the last week, that is the past seven days, how many times did you have milk on cereal?

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
I DIDN'T EAT CEREAL 3
NEVER USE MILK ON CEREAL ..... n
DON'T KNOW ..... d
REFUSED ..... r

14. When you use milk, how often is it 1%, skim, or fat-free milk?

Would you say, usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

15. In the last week, that is the past seven days, how many times did you eat yogurt? Do not include frozen yogurt.

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT YOGURT ..... n
DON'T KNOW ..... d
REFUSED ..... r

16. In the last week, that is the past seven days, how many times did you eat cheese? Also include cheese in sandwiches, casseroles, enchiladas, tacos, or on pizza?

PROBE (AS NEEDED): We're including cheese like American, cheddar, or Mozzarella or cottage cheese and Ricotta. This does not include Cheese Whiz or imitation cheese.

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT CHEESE ..... n
DON'T KNOW ..... d
REFUSED ..... r

17. In the last week, that is the past seven days, how many times did you have calcium-fortified orange juice or calcium-fortified soy milk?

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
DON'T KNOW ..... d
REFUSED ..... r

GRAIN INTAKE

18. In the last week, that is the past seven days, how many times did you eat a cereal like Cheerios, Raisin Bran, Shredded Wheat, Total, Wheaties, or oatmeal?

PROBE (AS NEEDED): This also includes Grape-Nuts, Frosted Mini Wheats, granola, and Quaker Oats Squares.

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT WHOLE GRAIN CEREAL ..... n
DON'T KNOW ..... d
REFUSED ..... r

19. In the last week, that is the past seven days, how many times did you eat whole grain bread like whole wheat bread or whole grain rye bread?

PROBE (AS NEEDED): This includes whole grain tortillas and whole wheat pita bread.

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT WHOLE GRAIN BREAD ..... n
DON'T KNOW ..... d
REFUSED ..... r

20. In the last week, that is the past seven days, how many times did you eat brown rice or whole wheat pasta?

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT THESE FOODS ..... n
DON'T KNOW ..... d
REFUSED ..... r

21. How often do you use butter, margarine, regular cream cheese, or mayonnaise on your bread, rolls, tortillas, rice, or pasta? Would you say, usually, sometimes, rarely, or never?

PROBE (AS NEEDED): This includes sandwiches, muffins, bagels, biscuits, and pita bread.

SELECT ONLY ONE

USUALLY	1
SOMETIMES	2
RARELY	3
NEVER	n
DON'T KNOW	d
REFUSED	r

TIME: |__|__|:|__|__| AM 1
PM 2

MEAT AND BEAN INTAKE

22. In the last week, that is the past seven days, how many times did you eat chicken or turkey?

INTERVIEWER NOTE: Include other types of poultry such as duck or geese.

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT CHICKEN OR TURKEY ..... n → **GO TO Q.25**
DON'T KNOW ..... d
REFUSED ..... r

23. When you eat chicken or turkey, how often do you eat it fried? Would you say usually, sometimes, rarely, or never?

INTERVIEWER NOTE: Include other types of poultry such as duck or geese.

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

24. When you eat chicken or turkey, how often do you eat it without the skin? Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

25. In the last week, that is the past seven days, how many times did you eat red meat such as beef, hamburger, or pork?

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT RED MEAT ..... n → **GO TO Q.29**
DON'T KNOW ..... d
REFUSED ..... r

26. Before eating, how often do you trim off the fat from beef or pork? Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

27. When cooking hamburger, how often do you drain off the fat? Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER 4
USE LEAN OR EXTRA LEAN HAMBURGER 5
DON'T USE HAMBURGER ..... n
DON'T KNOW ..... d
REFUSED ..... r

28. In the last week, that is the past seven days, how many times did you eat bologna, salami, ham, bacon, hot dogs, or other deli meats?

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT DELI MEAT ..... n
DON'T KNOW ..... d
REFUSED ..... r

29. In the last week, that is the past seven days, how many times did you eat fish? This includes canned, fresh, or frozen fish such as tuna, salmon, or catfish, and other kinds of fish.

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT FISH ..... n
DON'T KNOW ..... d
REFUSED ..... r

30. In the last week, that is the past seven days, how many times did you eat eggs?

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT EGGS ..... n
DON'T KNOW ..... d
REFUSED ..... r

31. In the last week, that is the past seven days, how many times did you eat peanut butter?

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT PEANUT BUTTER ..... n
DON'T KNOW ..... d
REFUSED ..... r

32. In the last week, that is the past seven days, how many times did you eat dry beans and peas such as kidney beans, pinto beans, split peas, lentils, or tofu?

PROBE (AS NEEDED): This also includes black beans, black-eyed peas, chickpeas, and soy beans. This also includes white beans and navy beans.

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT DRIED BEANS ..... n
DON'T KNOW ..... d
REFUSED ..... r

TIME: |__|__|:|__|__| AM 1
PM 2

DISCRETIONARY CALORIES AND SALT

33. In the last week, that is the past seven days, how many times did you drink fruit-flavored drinks like lemonade, Kool-Aid, Hi-C, fruit punch or sweetened iced tea? Please do not include diet drinks when thinking about your answer.

PROBE (AS NEEDED): That also includes Gatorade, Fruitopia, or Fruitworks.

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

NEVER 0
DAY 1
WEEK 2
DON'T KNOW ..... d
REFUSED ..... r

34. In the last week, that is the past seven days, how many times did you drink regular soda or soft drinks? Please do not include diet soda.

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

NEVER 0
DAY 1
WEEK 2
DON'T KNOW ..... d
REFUSED ..... r

35. In the last week, that is the past seven days, how many times did you eat snacks like potato chips, corn chips, cheese puffs, or pork rinds?

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT THESE KINDS OF SNACKS ..... n
DON'T KNOW ..... d
REFUSED ..... r

36. In the last week, that is the past seven days, how many times did you eat snacks like salted crackers or pretzels?

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT THESE KINDS OF SNACKS ..... n
DON'T KNOW ..... d
REFUSED ..... r

37. How often do you add salt to your food at the table? Please do not include salt added in cooking or preparation.

Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

38. When you cook with fat, do you usually use oil or do you use solid fat like butter, margarine, shortening or lard?

PROBE (AS NEEDED): Oils include canola, corn, and olive oils.

SELECT ONLY ONE

OIL 1
SOLID FAT 2
USE BOTH EQUALLY 3
NEVER COOK WITH FAT OR OIL ..... n
DON'T KNOW ..... d
REFUSED ..... r

39. In the last week, that is the past seven days, how many times did you eat food from a fast food restaurant?

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1

WEEK 2

NEVER EAT FAST FOOD ..... n

DON'T KNOW ..... d

REFUSED ..... r

TIME: |__|__|:|__|__| AM 1
PM 2

SHOPPING BEHAVIORS

Now, a few questions about grocery shopping.

40. How often do you plan your meals before you shop for groceries?

Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

41. When you grocery shop, how often do you use a list?

Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

42. Now, think about buying a food for the first time. How often do you use the Nutrition Facts on the food label to choose foods?

Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

ATTITUDES

I am to going read a series of statements. Tell me whether you agree or disagree with each one of them.

43. First statement . . . My overall diet is generally healthy.

Do you agree or disagree?

SELECT ONLY ONE

AGREE 1
DISAGREE 2
DON'T KNOW ..... d
REFUSED ..... r

44. (Next,) It costs too much for me to eat healthy foods.

READ AS NECESSARY: Do you agree or disagree?

SELECT ONLY ONE

AGREE 1
DISAGREE 2
DON'T KNOW ..... d
REFUSED ..... r

45. I'm too busy to take the time to prepare healthy foods.

READ AS NECESSARY: Do you agree or disagree?

SELECT ONLY ONE

AGREE 1
DISAGREE 2
DON'T KNOW ..... d
REFUSED ..... r

46. I don't think healthy foods taste good.

READ AS NECESSARY: Do you agree or disagree?

SELECT ONLY ONE

AGREE 1
DISAGREE 2
DON'T KNOW ..... d
REFUSED ..... r

47. People in my family don't think healthy foods taste good.

READ AS NECESSARY: Do you agree or disagree?

SELECT ONLY ONE

AGREE 1
DISAGREE 2
DON'T KNOW ..... d
REFUSED ..... r

48. Some people are born to be fat, some thin; there is not much you can do to change this.

READ AS NECESSARY: Do you agree or disagree?

SELECT ONLY ONE

AGREE 1
DISAGREE 2
DON'T KNOW ..... d
REFUSED ..... r

TIME: |__|__|:|__|__| AM 1
PM 2

FOOD AVAILABILITY

Let's change the subject and talk about the kinds of food you have available at home.

49. Do you usually, sometimes, rarely, or never have fruit available at home? Please include canned, dried, fresh, and frozen fruit.

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER .....n
DON'T KNOW .....d
REFUSED .....r

50. Do you usually, sometimes, rarely, or never have dark green vegetables like broccoli, dark green leafy lettuce, kale, Romaine lettuce, spinach, or greens available at home? Please include canned, fresh, and frozen vegetables.

PROBE: Dark green vegetables also include bok choy, collard, mustard, and turnip greens, mesclun, and watercress.

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER .....n
DON'T KNOW .....d
REFUSED .....r

51. Do you usually, sometimes, rarely, or never have orange vegetables such as carrots or sweet potatoes available at home?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

52. Do you usually, sometimes, rarely, or never have salty snacks such as potato chips, corn chips, cheese puffs, or pork rinds available at home?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

53. Do you usually, sometimes, rarely, or never have candy available at home?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

54. Do you usually, sometimes, rarely, or never have 1% fat, skim, or fat-free milk available at home?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

55. Do you usually, sometimes, rarely, or never have soft drinks, fruit-flavored drinks, or fruit punch available at home?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

56. Do you usually, sometimes, rarely, or never have whole wheat bread available at home?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

57. Do you usually, sometimes, rarely, or never have cereal like Cheerios, Raisin Bran, Shredded Wheat, Total, Wheaties, or oatmeal available at home?

PROBE (AS NEEDED): This also includes Grape-Nuts, Frosted Mini Wheats, granola and Quaker Oats Squares.

SELECT ONLY ONE

USUALLY	1
SOMETIMES	2
RARELY	3
NEVER	n
DON'T KNOW	d
REFUSED	r

TIME: |__|__|:|__|__| AM.....1

PM.....2

WEIGHT CONTROL

Let's change the subject.

58. During the past 12 months, have you changed anything in your diet to be more healthy?

YES 1

NO 0

DON'T KNOW .....d

REFUSED .....r

59. During the past 12 months, have you done anything to lose weight or keep from gaining weight?

YES 1

NO 0

DON'T KNOW .....d

REFUSED .....r

IF YES TO EITHER Q.58, Q.59, OR BOTH, GO TO Q.60.
OTHERWISE GO TO Q.61.

60. What have you changed or done during the past 12 months to improve your diet, lose weight, or keep from gaining weight?

PROBE: Anything else?

CIRCLE ALL THAT APPLY

EAT LESS FOOD 1
EAT FEWER CALORIES 2
USE ARTIFICIAL SWEETENERS 3
EAT LESS FAT 4
EAT LESS CARBOHYDRATE 5
REDUCE SALT INTAKE 6
INCREASE FRUITS AND VEGETABLES 7
EXERCISE 8
SKIP MEALS 9
GIVE UP CERTAIN FOODS 10
STOP SNACKING 11
GIVE UP DESSERTS 12
DON'T EAT IN THE EVENING 13
JOIN A WEIGHT LOSS PROGRAM 14

PROBE (AS NEEDED): THESE PROGRAMS INCLUDE WEIGHT WATCHERS AND JENNY CRAIG.

OTHER (SPECIFY) 15

DON'T KNOW ..... d
REFUSED ..... r

61. How often do you eat meals, have snacks, or drink something while watching TV or a movie?

Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

62. In the last week, that is the past seven days, how many times did you eat breakfast or a meal within two hours after you woke up?

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)

DAY 1
WEEK 2
NEVER EAT MEAL AFTER WAKENING ..... n
DON'T KNOW ..... d
REFUSED ..... r

TIME: |__|__|:|__|__| AM.....1

PM.....2

PHYSICAL ACTIVITY

Now, I'd like to ask a few questions about physical activity.

We are interested in two types of physical activity—vigorous and moderate. Vigorous activities cause large increases in breathing or heart rate while moderate activities cause small increases in breathing or heart rate.

63. Now, think about moderate activities such as brisk walking, bicycling, vacuuming, gardening, or anything else that causes some increase in breathing or heart rate. Do you do moderate activities for at least 10 minutes at a time?

YES 1
NO 0
DON'T KNOW .....d → **GO TO Q.66**
REFUSED .....r

64. How many days per week do you do these moderate activities for at least 10 minutes?

|__|__| DAYS PER WEEK

DON'T KNOW .....d
REFUSED .....r

65. On days when you do moderate activities for at least 10 minutes at a time, how much total time per day do you spend doing these activities?

|__|__| HOURS

|__|__| MINUTES

DON'T KNOW .....d
REFUSED .....r

66. Now think about vigorous activities, such as running, aerobics, heavy yard work, or anything else that causes large increases in breathing or heart rate. Do you do vigorous activities for at least 10 minutes at a time?

YES 1
NO 0
DON'T KNOW ..... d
REFUSED ..... r

→ **GO TO Q.69**

67. How many days per week do you do these vigorous activities for at least 10 minutes at a time?

|__|__| DAYS PER WEEK

DON'T KNOW ..... d
REFUSED ..... r

68. On days when you do vigorous activities for at least 10 minutes at a time, how much total time per day do you spend doing these activities?

|__|__| HOURS

|__|__| MINUTES

DON'T KNOW ..... d
REFUSED ..... r

TIME: |__|__|:|__|__| AM.....1

PM.....2

DEMOGRAPHICS

We're almost finished. I just have a few more questions.

69. How tall are you without shoes?

|__|__| ENTER NUMBER OF FEET

AND

|__|__| ENTER NUMBER OF INCHES

DON'T KNOW .....d

REFUSED .....r

70. How much do you weigh without clothes or shoes?

|__|__|__| ENTER NUMBER OF POUNDS

DON'T KNOW .....d

REFUSED .....r

71. What is your age?

PROBE (AS NEEDED): What is your birthdate?

|__|__| YEARS OLD

|__|__| / |__|__| / |__|__|__|__|
MONTH DAY YEAR

72. **CODE WITHOUT ASKING (ASK ONLY IF NOT OBVIOUS):**
Are you male or female?

MALE.....1

FEMALE 2

DON'T KNOW .....d

REFUSED .....r

73. Would you say your own health is excellent, very good, good, fair or poor?

EXCELLENT.....1
VERY GOOD.....2
GOOD.....3
FAIR 4
POOR.....5
DON'T KNOW .....d
REFUSED .....r

74. Do you consider yourself to be of Hispanic origin?

YES 1
NO 0
DON'T KNOW .....d
REFUSED .....r

75. Which of the following best describes your racial background? Is it White, Black or African American, Asian, American Indian or Alaska Native, or Native Hawaiian or other Pacific Islander?

NOTE: IF RESPONDENT ANSWERS HISPANIC (OR SPANISH), ASK:
Are you White Hispanic or Black Hispanic?

NOTE: IF RESPONDENT ANSWERS MIXED OR MULTIPLE RACES, ASK:
"Which ones" AND CIRCLE ALL THAT APPLY.

CIRCLE ALL THAT APPLY

WHITE.....1
BLACK OR AFRICAN AMERICAN.....2
ASIAN.....3
AMERICAN INDIAN OR ALASKA NATIVE.....4
NATIVE HAWAIIAN OR
PACIFIC ISLANDER 5
OTHER (SPECIFY) 6

_____

DON'T KNOW .....d
REFUSED .....r

76. What was your total household income last month, before taxes? Please include all types of income received by all household members from jobs, public assistance, interest, or any other sources. An estimate is fine.

$ |__|,|__|__|__| LAST MONTH → **GO TO Q.78**

NONE ..... 0 → **GO TO Q.78**
DON'T KNOW ..... d
REFUSED ..... r

77. Please stop me when I reach your household's total income for last month. Was it . . .

Less than $500, ... 1
$500 to $999, ... 2
$1,000 to $1,499, ... 3
$1,500 to $1,999, ... 4
$2,000 to $2,499, ... 5
$2,500 to $2,999, ... 6
$3,000 or more? 7
DON'T KNOW ..... d
REFUSED ..... r

78. I just have a few more questions. You've been very patient and very helpful.

a. How long have you been on the Food Stamp Program?

|__|__| YEARS |__|__| MONTHS

OTHER (SPECIFY) 99

_____

DON'T KNOW ..... d
REFUSED ..... r

b. Have you taken any nutrition classes?

YES 1
NO 0
DON'T KNOW ..... d → **GO TO Q.78e**
REFUSED ..... r

c. Were these classes part of the Food Stamp Program, WIC, or something else?	d. How long ago did you take these classes?
FOOD STAMP PROGRAM ..... 1 WIC..... 2 OTHER (SPECIFY) ..... 3 _____	|__|__| YEARS |__|__| MONTHS |__|__| YEARS |__|__| MONTHS |__|__| YEARS |__|__| MONTHS

e. Are you familiar with the term . . .

	YES	NO	DON'T KNOW
1. Food Guide Pyramid	1	0	d
2. 5-a-Day	1	0	d
3. My Pyramid	1	0	d

END. That completes the interview. In order to send you your twenty dollars, I need to record your mailing address. [**INTERVIEWER: RECORD INFORMATION BELOW.**] You should receive your check in about four to five weeks. Thank you so much for your time.

NAME:_____

ADDRESS:_____

_____

CITY/STATE/ZIP:_____

END OF INTERVIEW:

TIME: |__|__|:|__|__| AM 1
PM 2

APPENDIX B

FREQUENCIES OF 'DON'T KNOW' AND REFUSALS AND BEHAVIORAL CODING FREQUENCIES OF RESPONDENT AND INTERVIEWER BEHAVIORS

TABLE B.1

FREQUENCY OF DON'T KNOW AND REFUSED RESPONSES AND RESPONDENT AND INTERVIEWER BEHAVIOR CODES BY QUESTION

	Full Sample (N=453)		Behavior Coding (N=62)																
Question Number	Don't Know	Refused	Misread-Major	Misread-Minor	Misread-Response	Skipped Question	Other	Total Interviewer codes	Number of inter-viewers with codes	Percentage inter-ewers with codes (n=18)	Request Repeat	Request Clarification	Interrupts	Uncertainty	Uncodeable	Total Respondent codes	Number of respondents with codes	Percentage of respondents with codes (n=62)	Total
2	0	0	0	4	0	0	8	12	9	50	2	14	0	4	7	27	24	39	39
3	0	0	1	1	1	0	2	5	4	22	0	6	1	3	1	11	9	15	16
4	0	2	0	1	0	0	14	15	7	39	0	8	0	0	10	18	17	27	33
5	0	0	0	1	0	0	9	10	6	33	2	6	0	1	11	20	20	32	30
6	0	0	0	0	0	0	5	5	4	22	0	5	1	0	2	8	8	13	13
7	0	0	0	0	0	0	4	4	3	17	1	0	0	1	3	5	5	8	9
8	0	0	1	1	0	0	1	3	3	17	0	3	5	0	3	11	11	18	14
9	0	0	0	0	0	0	4	4	3	17	0	0	0	0	0	0	0	0	4
10	0	0	0	0	0	0	0	0	0	0	1	1	0	0	4	6	6	10	6
11	0	0	0	1	0	0	0	1	1	6	0	2	0	0	2	4	4	6	5
12	0	1	0	1	1	0	6	8	6	33	2	5	2	2	9	20	18	29	28
13	0	0	0	0	1	0	7	8	5	28	0	2	0	0	3	5	5	8	13
14	0	0	1	1	0	0	2	4	3	17	2	4	1	0	9	16	14	23	20
15	0	0	0	0	0	0	8	8	6	33	0	1	0	0	1	2	2	3	10
16	0	0	0	0	0	0	10	10	8	44	1	3	0	1	5	10	10	16	20
17	0	2	0	0	0	0	5	5	5	28	0	4	0	0	4	8	8	13	13
18	0	1	0	0	1	0	5	6	6	33	0	2	0	0	4	6	6	10	12
19	0	1	0	0	0	0	6	6	3	17	0	1	1	0	3	5	5	8	11
20	0	1	0	0	0	0	7	7	5	28	1	1	0	0	1	3	3	5	10
21	0	0	0	0	0	0	1	1	1	6	1	1	4	0	3	9	9	15	10
22	0	0	2	0	0	0	6	8	4	22	0	2	0	0	5	7	7	11	15
23	0	0	0	1	0	0	0	1	1	6	2	2	1	0	1	6	5	8	7
24	0	0	0	0	0	0	1	1	1	6	2	1	1	0	2	6	5	8	7
25	0	0	0	1	0	0	3	4	4	22	0	3	0	0	4	7	6	10	11
26	0	0	0	0	0	1	1	2	2	11	1	0	4	0	1	6	6	10	8
27	0	0	0	0	0	1	0	1	1	6	0	0	4	0	0	4	4	6	5
28	0	0	0	0	0	0	4	4	4	22	1	1	0	0	2	4	4	6	8
29	0	0	0	2	1	0	4	7	5	28	0	1	0	0	0	1	1	2	8
30	0	0	0	0	0	0	1	1	1	6	2	1	0	0	1	4	4	6	5
31	0	0	0	0	0	0	7	7	3	17	0	3	0	1	1	5	5	8	12
32	0	1	0	1	0	0	10	11	8	44	0	3	1	0	2	6	6	10	17

	Full Sample (N=453)		Behavior Coding (N=62)																
Question Number	Don't Know	Refused	Misread-Major	Misread-Minor	Misread-Response	Skipped Question	Other	Total Interviewer codes	Number of inter-viewers with codes	Percentage inter-ewers with codes (n=18)	Request Repeat	Request Clarification	Interrupts	Uncertainty	Uncodeable	Total Respondent codes	Number of respondents with codes	Percentage of respondents with codes (n=62)	Total
33	0	0	0	3	0	0	5	8	6	33	1	7	4	1	6	19	16	26	27
34	0	0	0	0	0	0	3	3	3	17	2	3	1	0	4	10	9	15	13
35	0	0	0	0	0	0	3	3	2	11	0	2	0	0	3	5	5	8	8
36	0	0	0	0	0	0	6	6	4	22	1	1	0	0	3	5	5	8	11
37	0	0	1	1	1	0	0	3	3	17	1	1	1	0	2	5	5	8	8
38	0	0	0	0	0	0	3	3	3	17	2	0	0	1	7	10	9	15	13
39	0	0	0	0	0	0	4	4	4	22	1	1	0	0	1	3	3	5	7
40	0	1	0	0	1	0	2	3	3	17	2	0	1	0	2	5	5	8	8
41	0	0	1	0	0	0	0	1	1	6	1	1	0	0	0	2	2	3	3
42	0	0	1	0	1	0	1	3	3	17	0	0	1	0	0	1	1	2	4
43	0	2	0	2	0	0	3	5	5	28	1	3	0	1	1	6	5	8	11
44	0	1	0	1	0	0	5	6	5	28	5	2	0	1	0	8	8	13	14
45	0	1	0	0	1	0	5	6	5	28	1	0	0	0	1	2	2	3	8
46	0	8	0	0	0	0	6	6	5	28	1	0	0	0	0	1	1	2	7
47	0	4	0	0	0	0	5	5	5	28	2	0	0	0	0	2	2	3	7
48	0	7	0	0	0	0	6	6	5	28	0	0	0	3	0	3	3	5	9
49	0	0	0	3	0	0	1	4	4	22	3	4	3	0	7	17	17	27	21
50	0	0	0	2	0	0	0	2	1	6	0	2	8	1	2	13	11	18	15
51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	3	2
52	0	0	0	0	0	0	1	1	1	6	0	0	0	0	3	3	3	5	4
53	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	3	3	5	3
54	0	0	0	1	0	0	1	2	2	11	1	1	0	0	3	5	5	8	7
55	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	3	5	3
56	0	1	0	0	0	0	1	1	1	6	0	0	0	0	1	1	1	2	2
57	0	0	0	0	0	0	1	1	1	6	1	0	1	0	2	4	4	6	5
58	0	1	0	0	0	0	0	0	0	0	0	2	0	1	6	9	8	13	9
59	0	1	0	0	0	0	0	0	0	0	0	1	0	0	2	3	3	5	3
60	0	0	0	1	0	0	2	3	3	17	0	2	0	0	4	6	6	10	9
61	0	0	0	2	1	0	0	3	3	17	0	2	1	0	2	5	5	8	8
62	0	1	0	0	0	0	2	2	2	11	3	9	0	1	25	38	36	58	40
63	0	3	0	1	0	1	0	2	2	11	1	3	0	0	3	7	6	10	9
64	0	0	0	0	0	1	1	2	1	6	0	3	2	0	5	10	10	16	12
65	0	8	0	0	0	1	1	2	2	11	3	8	0	5	11	27	21	34	29

	Full Sample (N=453)		Behavior Coding (N=62)																
Question Number	Don't Know	Refused	Misread-Major	Misread-Minor	Misread-Response	Skipped Question	Other	Total Interviewer codes	Number of inter-viewers with codes	Percentage inter-ewers with codes (n=18)	Request Repeat	Request Clarification	Interrupts	Uncertainty	Uncodeable	Total Respondent codes	Number of respondents with codes	Percentage of respondents with codes (n=62)	Total
66	0	1	0	0	0	1	3	4	3	17	1	4	3	0	6	14	13	21	18
67	0	0	0	0	0	4	0	4	4	22	0	0	1	0	0	1	1	2	5
68	0	4	0	0	0	4	0	4	4	22	0	1	1	2	3	7	6	10	11
69	0	1	0	0	0	0	1	1	1	6	0	0	0	0	0	0	0	0	1
70	1	13	0	0	0	0	0	0	0	0	0	0	0	2	2	4	4	6	4
71	0	0	0	1	0	3	1	5	5	28	0	0	0	0	0	0	0	0	5
73[a]	0	0	0	0	0	0	0	0	0	0	0	1	0	2	1	4	4	6	4
74	0	5	0	0	1	0	0	1	1	6	2	3	1	1	1	8	8	13	9
75	1	2	1	2	3	0	6	12	10	56	1	2	6	3	4	16	15	24	28
76	18	39	0	1	0	0	3	4	3	17	0	12	1	11	4	28	23	37	32
77	14	5	0	0	0	1	1	2	2	11	1	1	0	0	1	3	2	3	5
78a	0	10	0	0	0	0	5	5	4	22	1	3	0	5	12	21	20	32	26
78b	0	1	0	1	0	0	1	2	1	6	0	1	0	1	3	5	5	8	7
78c	0	0	0	2	0	1	2	5	3	17	0	1	0	0	3	4	4	6	9
78d	0	2	1	0	0	0	2	3	3	17	0	0	0	0	7	7	7	11	10
78e_1	0	1	0	1	0	0	2	3	3	17	10	7	0	1	2	20	19	31	23
78e_2	0	5																	
78e_3	0	9																	
TOTAL	34	146	10	41	14	19	236	320			70	184	62	56	263	635			955
Percentage of total possible responses[b]	0.1	0.4	0.2	0.8	2.8	0.4	4.6	6.3			1.4	3.6	1.2	1.1	5.2	12.5			18.8

[a]Question 72, "CODE WITHOUT ASKING: Are you male or female?" had zero don't know, refusals, or behavior codes.

[b]The total number of possible responses for 82 questions (excludes question 72 and includes subparts) and 453 respondents is 37,146. The total number of possible responses in the behavioral coding for 82 questions and 62 respondents is 5, 084.

APPENDIX C

FINAL DIETARY BEHAVIOR QUESTIONNAIRE WITH RECOMMENDED CHANGES (TRACKED CHANGES DISPLAYED)

MPR Reference No.: 6191-600

MATHEMATICA
Policy Research, Inc.

Dietary Behavior Questionnaire

December 29, 2006

MPR ID: |__|__|__|__|__|__|__|__|

Interviewer ID: |__|__|__|__|__|__|

Date: |__|__| / |__|__| / |__|__|

Paperwork Reduction Act Statement

A federal agency may not conduct or sponsor, and a person is not required to respond to this collection of information, unless it displays a currently valid OMB control number. Sample members' obligation to reply to this survey is voluntary. Public burden for this survey is estimated to average 23 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the necessary data, and completing and reviewing the collection of information.

Privacy Act Statement

In compliance with the Privacy Act of 1974, the following information is being provided to you: The contractor, Mathematica Policy Research, Inc., will use the information you provide to develop a dietary questionnaire for the U.S. Department of Agriculture. The information you provide will not affect your eligibility for any federal, state, or local government program or receipt of benefits from such programs. The information you provide will be kept confidential and the answers you give will not be identified as yours in any published material.

Prepared by Mathematica Policy Research, Inc.

START TIME: |__|__|:|__|__| AM.....1
PM.....2

INTRODUCTION

1. My name is [NAME] and I'm from Mathematica Policy Research, Inc., a research company in Princeton, New Jersey. We are doing a study for the U.S. Department of Agriculture to learn more about the kinds of food people eat and how they decide what to eat.

   Your participation in this study is voluntary and will not affect any benefits or services you or your family receive now or in the future. The interview will last about 20 minutes and we will mail you $20 when you complete the survey.

   This interview may be recorded for quality assurance purposes. Before we begin, I'd like to read a statement that explains that everything you tell me is completely confidential. **(READ TEXT FROM CONFIDENTIALITY ACKNOWLEDGEMENT FORM.)**

   Now let's start with food you have had to eat or drink in the past seven days.

Deleted: First, I'd like to ask about different foods you eat.

FRUIT INTAKE

2. First, let's talk about fruit. Please think about the last week, that is, the past seven days, how many times did you eat canned, dried, fresh, or frozen fruit? Do not include fruit juice.

   You can tell me either the number of times a day or the number of times a week.

   |__|__|..... TIMES PER DAY

   OR

   |__|__|__ TIMES PER WEEK

   NEVER EAT FRUIT.....n
   DON'T KNOW .....d
   REFUSED .....r

Deleted: Please d

Deleted: ENTER NUMBER OF

Deleted: (

Deleted: OR WEEK)

Deleted: ¶
DAY 1¶
WEEK 2¶

4. In the last week, that is, the past seven days, how many times did you drink 100% fruit juices, not counting fruit flavored drinks?

You can tell me either the number of times a day or the number of times a week.

PROBE (AS NEEDED): Fruit-flavored drinks include drinks like lemonade, Kool-Aid, Hi-C, or fruit punch.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER DRINK 100% JUICE .....n

DON'T KNOW .....d

REFUSED .....r

Deleted: 3. When you eat dessert how often is it canned, dried, fresh, or frozen fruit?¶
¶
Would you say usually, sometimes, rarely, or never?¶
¶
SELECT ONLY ONE¶
USUALLY 1¶
SOMETIMES 2¶
RARELY 3¶
NEVER 4¶
DON'T EAT DESSERT n¶
DON'T KNOW d¶
REFUSED r¶
¶

Deleted: |__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)¶
¶
DAY 1¶
WEEK 2

VEGETABLE INTAKE

5. In the last week, that is, the past seven days, how many times did you eat vegetables of any kind? Please include canned, fresh, or frozen vegetables.

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT VEGETABLES .....n → **GO TO Q.12**

DON'T KNOW .....d

REFUSED .....r

Deleted: |__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)¶
¶
DAY 1¶
WEEK 2¶

6. In the last week, how many times did you eat baked, boiled, or mashed potatoes? Please do not include French fries.

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READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

| | | | TIMES PER DAY

OR

| | | | TIMES PER WEEK

NEVER EAT THESE KINDS OF POTATOES ..... n

DON'T KNOW ..... d

REFUSED ..... r

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|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)¶
¶
DAY 1¶
WEEK 2¶

7. In the last week, that is, the past seven days, how many times did you eat French fries or fried potatoes? **READ (AS NEEDED):** You can tell me either the number of times a day or the number of times a week.

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¶

| | | | TIMES PER DAY

OR

| | | | TIMES PER WEEK

NEVER EAT FRENCH FRIES ..... n

DON'T KNOW ..... d

REFUSED ..... r

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¶
DAY 1¶
WEEK 2¶

8. In the last week, that is, the past seven days, how many times did you eat dark green vegetables like broccoli, dark green leafy lettuce, kale, Romaine lettuce, spinach, or greens? Please include canned, fresh, and frozen vegetables. Do not include green beans or peas.

PROBE (AS NEEDED): Dark green vegetables also include bok choy, collard, mustard, and turnip greens, mesclun, and watercress.

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

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| | | | TIMES PER DAY

OR

| | | | TIMES PER WEEK

NEVER EAT DARK GREEN VEGETABLES....n

DON'T KNOW .....d

REFUSED .....r

Deleted: |__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)¶
¶
DAY 1¶
WEEK 2

9. In the last week, that is, the past seven days, how many times did you eat orange vegetables like carrots or sweet potatoes?

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT ORANGE VEGETABLES.....n
DON'T KNOW .....d
REFUSED .....r

TIME: |__|__|:|__|__| AM 1
PM 2

DAIRY AND OTHER CALCIUM INTAKE

12. In the last week, that is the past seven days, how many times did you drink plain, chocolate, or flavored milk as a beverage? Please do not include milk in coffee or tea.

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER DRINK MILK.....n
DON'T KNOW .....d
REFUSED .....r

13. In the last week, that is the past seven days, how many times did you have milk on cereal?

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|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)¶
¶
DAY 1¶
WEEK 2¶

Deleted: 10. How often do you put butter or margarine on your cooked vegetables? Would you say, usually, sometimes, rarely, or never?¶
¶
SELECT ONLY ONE¶
USUALLY 1¶
SOMETIMES 2¶
RARELY 3¶
NEVER n¶
DON'T KNOW d¶
REFUSED r¶
¶
¶
11. How often do you eat fruit or vegetables as snacks? Would you say, usually, sometimes, rarely, or never?¶
¶
SELECT ONLY ONE¶
USUALLY 1¶
SOMETIMES 2¶
RARELY 3¶
NEVER n¶
DON'T KNOW d¶
REFUSED r¶
Page Break

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|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)¶
¶
DAY 1¶
WEEK 2¶

Deleted: USE

Deleted: GO TO Q.15

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

| | | | TIMES PER DAY

OR

| | | | TIMES PER WEEK

NEVER USE MILK ON CEREAL.....n

DON'T KNOW .....d

REFUSED .....r

Deleted: |__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)¶
¶
DAY 1¶
WEEK 2

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15. In the last week, that is the past seven days, how many times did you eat yogurt? Do not include frozen yogurt.

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

| | | | TIMES PER DAY

OR

| | | | TIMES PER WEEK

Deleted: 14. When you use milk, how often is it 1%, skim, or fat-free milk?¶
¶
Would you say, usually, sometimes, rarely, or never?¶
¶
SELECT ONLY ONE¶
USUALLY 1¶
SOMETIMES 2¶
RARELY 3¶
NEVER n¶
DON'T KNOW d¶
REFUSED r¶
----------Page Break----------

NEVER EAT YOGURT.....n

DON'T KNOW .....d

REFUSED .....r

Deleted: ¶
|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)¶
¶
DAY 1¶
WEEK 2¶

16. In the last week, that is the past seven days, how many times did you eat cheese? Also include cheese in sandwiches, casseroles, enchiladas, tacos, or on pizza?

PROBE (AS NEEDED): We're including cheese like American, cheddar, or Mozzarella or cottage cheese and Ricotta. This does not include Cheese Whiz or imitation cheese.

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

| | | | TIMES PER DAY

OR

| | | | TIMES PER WEEK

NEVER EAT CHEESE ..... n

DON'T KNOW ..... d

REFUSED ..... r

17. In the last week, that is the past seven days, how many times did you have calcium-fortified orange juice or calcium-fortified soy milk?

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

DON'T KNOW ..... d

REFUSED ..... r

Deleted: ¶
¶
|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)¶
¶
DAY 1¶
WEEK 2

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¶
|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)¶
¶
DAY 1¶
WEEK 2¶

GRAIN INTAKE

18. In the last week, that is the past seven days, how many times did you eat a cereal like Cheerios, Raisin Bran, Shredded Wheat, Total, Wheaties, or oatmeal?

PROBE (AS NEEDED): This also includes Grape-Nuts, Frosted Mini Wheats, granola, and Quaker Oats Squares.

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT WHOLE GRAIN CEREAL .....n
DON'T KNOW .....d
REFUSED .....r

Deleted: ¶
¶
|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)¶
¶
DAY 1¶
WEEK 2¶

19. In the last week, that is the past seven days, how many times did you eat whole grain bread like whole wheat bread or whole grain rye bread?

PROBE (AS NEEDED): This includes whole grain tortillas and whole wheat pita bread.

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT WHOLE GRAIN BREAD .....n
DON'T KNOW .....d
REFUSED .....r

Deleted: ¶
¶
|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)¶
¶
DAY 1¶
WEEK 2¶

20. In the last week, that is the past seven days, how many times did you eat brown rice or whole wheat pasta?

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT THESE FOODS .....n

DON'T KNOW .....d

REFUSED .....r

Deleted: ¶
¶
|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)¶
¶
DAY 1¶
WEEK 2¶

TIME: |__|__|:|__|__| AM 1

PM 2

MEAT AND BEAN INTAKE

22. In the last week, that is the past seven days, how many times did you eat chicken or turkey?

PROBE (AS NEEDED): Include other types of poultry such as duck or geese.

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT CHICKEN OR TURKEY ..... n

DON'T KNOW ..... d

REFUSED ..... r

25. In the last week, that is the past seven days, how many times did you eat red meat such as beef, hamburger, or pork?

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT RED MEAT

(SOLID OR GROUND) ..... n → **GO TO Q.29**

ONLY EAT HAMBURGER 98

DON'T KNOW ..... d

REFUSED ..... r

Deleted: 21. How often do you use butter, margarine, regular cream cheese, or mayonnaise on your bread, rolls, tortillas, rice, or pasta? Would you say, usually, sometimes, rarely, or never?¶

¶

PROBE (AS NEEDED): This includes sandwiches, muffins, bagels, biscuits, and pita bread.¶

¶

SELECT ONLY ONE¶

USUALLY 1¶

SOMETIMES 2¶

RARELY 3¶

NEVER n¶

DON'T KNOW d¶

REFUSED r¶

Page Break

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¶

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)¶

¶

DAY 1¶

WEEK 2¶

Deleted: 23. When you eat chicken or turkey, how often do you eat it fried? Would you say usually, sometimes, rarely, or never?¶

¶

INTERVIEWER NOTE: Include other types of poultry such as duck or geese.¶

¶

SELECT ONLY ONE¶

USUALLY 1¶

SOMETIMES 2¶

RARELY 3¶

NEVER n¶

DON'T KNOW d¶

REFUSED r¶

¶

¶

24. When you eat chicken or turkey, how often do you eat it without the skin? Would you say usually, sometimes, rarely, or never?¶

¶ ... [1]

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¶

|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)¶

¶

DAY 1¶

WEEK 2¶

Deleted: 26. Before eating, how often do you trim off the fat from beef or pork? Would you say usually, sometimes, rarely, or never?¶

¶

SELECT ONLY ONE¶

USUALLY 1¶

SOMETIMES 2¶

RARELY 3¶

NEVER n¶

DON'T KNOW d¶ ... [2]

28. In the last week, that is the past seven days, how many times did you eat bologna, salami, ham, bacon, hot dogs, or other deli meats?

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT DELI MEAT ..... n
DON'T KNOW ..... d
REFUSED ..... r

Deleted: ¶
¶
|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)¶
¶
DAY 1¶
WEEK 2¶

29. In the last week, that is the past seven days, how many times did you eat fish? This includes canned, fresh, or frozen fish such as tuna, salmon, or catfish, and other kinds of fish.

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT FISH ..... n
DON'T KNOW ..... d
REFUSED ..... r

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¶
|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)¶
¶
DAY 1¶
WEEK 2¶

30. In the last week, that is the past seven days, how many times did you eat eggs?

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT EGGS ..... n
DON'T KNOW ..... d

Deleted: ¶
|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)¶
¶
DAY 1¶
WEEK 2¶

REFUSED ....r

31. In the last week, that is the past seven days, how many times did you eat peanut butter?

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT PEANUT BUTTER .....n
DON'T KNOW .....d
REFUSED .....r

Deleted: |__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)¶
¶
DAY 1¶
WEEK 2¶

32. In the last week, that is the past seven days, how many times did you eat dry beans and peas such as kidney beans, pinto beans, split peas, lentils, or tofu?

PROBE (AS NEEDED): This also includes black beans, black-eyed peas, chickpeas, and soy beans. This also includes white beans and navy beans.

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT DRIED BEANS.....n
DON'T KNOW .....d
REFUSED .....r

Deleted: ¶
|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)¶
¶
DAY 1¶
WEEK 2¶

TIME: |__|__|:|__|__| AM 1
PM 2

DISCRETIONARY CALORIES AND SALT

33. In the last week, that is the past seven days, excluding diet drinks, how many times did you drink fruit-flavored drinks like lemonade, Kool-Aid, Hi-C, fruit punch or sweetened iced tea?
PROBE (AS NEEDED): That also includes Gatorade, Fruitopia, or Fruitworks.

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

Deleted: Please do not include diet drinks when thinking about your answer.¶

Deleted: ¶
|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)¶
¶
NEVER 0¶
DAY 1¶
WEEK 2¶

34. In the last week, that is the past seven days, how many times did you drink regular soda or soft drinks? Please do not include diet soda.

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

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¶
|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)¶
¶

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Deleted: DAY 1¶
WEEK 2

35. In the last week, that is the past seven days, how many times did you eat snacks like potato chips, corn chips, cheese puffs, or pork rinds?

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT THESE KINDS OF SNACKS ..... n

DON'T KNOW ..... d

REFUSED ..... r

Deleted: ¶
|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)¶
¶
DAY 1¶
WEEK 2¶

36. In the last week, that is the past seven days, how many times did you eat snacks like salted crackers or pretzels?

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT THESE KINDS OF SNACKS .....n
DON'T KNOW .....d
REFUSED .....r

Deleted: ¶
¶
|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)¶
¶
DAY 1¶
WEEK 2¶

39. In the last week, that is the past seven days, how many times did you eat food from a fast food restaurant?

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT FAST FOOD.....n
DON'T KNOW .....d
REFUSED .....r

Deleted: 37. How often do you add salt to your food at the table? Please do not include salt added in cooking or preparation.¶
¶
Would you say usually, sometimes, rarely, or never?¶
¶
SELECT ONLY ONE¶
USUALLY 1¶
SOMETIMES 2¶
RARELY 3¶
NEVER n¶
DON'T KNOW d¶
REFUSED r¶
¶
¶
38. When you cook with fat, do you usually use oil or do you use solid fat like butter, margarine, shortening or lard?¶
¶
PROBE (AS NEEDED): Oils include canola, corn, and olive oils.¶
¶
SELECT ONLY ONE¶
OIL 1¶
SOLID FAT 2¶
USE BOTH EQUALLY 3¶
NEVER COOK WITH FAT OR OIL n¶
DON'T KNOW d¶
REFUSED r¶
Page Break

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¶
|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)¶
¶
DAY 1¶
WEEK 2¶

TIME: | | |:| | | AM 1

PM 2

EATING AND FOOD PREPARATION BEHAVIORS

62. In the last week, that is the past seven days, how many **days** ~~times~~ did you eat breakfast or a meal within **a few** ~~two~~ hours after you woke up?

| | | | ~~TIMES PER~~ **DAYS PER WEEK**

NEVER EAT MEAL AFTER WAKENING ..... n

DON'T KNOW ..... d

REFUSED ..... r

NEW Q. Was the food you ate last week, that is in the past seven days, typical of what you usually eat?

YES 1

NO 0

DON'T KNOW ..... d

REFUSED ..... r

3. When you eat dessert how often is it canned, dried, fresh, or frozen fruit?

Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1

SOMETIMES 2

RARELY 3

NEVER 4

DON'T EAT DESSERT ..... n

DON'T KNOW ..... d

REFUSED ..... r

11. How often do you eat fruit or vegetables as snacks? Would you say, usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

10. How often do you put butter or margarine on your cooked vegetables? Would you say, usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

21. How often do you use butter, margarine, regular cream cheese, or mayonnaise on your bread, rolls, tortillas, rice, or pasta? Would you say, usually, sometimes, rarely, or never?

PROBE (AS NEEDED): This includes sandwiches, muffins, bagels, biscuits, and pita bread.

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

14. When you use milk, how often is it 1%, skim, or fat-free milk?

Would you say, usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
NEVER USE MILK ..... 9 → **GO TO Q.23**
DON'T KNOW ..... d
REFUSED ..... r

14a. When you use milk, how often is it 2% or whole milk?

Would you say, usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

NEW Q. (To replace Q14 and Q14a)
What type of milk do you usually drink or use? Would you say skim or fat free, 1%, 2%, or whole milk?

SELECT ONLY ONE

SKIM/ FAT FREE MILK 1
1% MILK 2
2% MILK 3
WHOLE MILK 4
DON'T USE MILK ..... n
DON'T KNOW ..... d
REFUSED ..... r

23. When you eat chicken or turkey, how often do you eat it fried? Would you say usually, sometimes, rarely, or never?

PROBE (AS NEEDED): Include other types of poultry such as duck or geese.

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
NEVER EAT CHICKEN OR TURKEY……..9 → **GO TO Q.26**
DON'T KNOW ..... d
REFUSED ..... r

24. When you eat chicken or turkey, how often do you eat it without the skin? Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

26. Before eating, how often do you trim off the fat from beef or pork? Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
NEVER EAT BEEF OR PORK
(SOLID OR GROUND)……..9 → GO TO Q.37
DON'T KNOW ..... d
REFUSED ..... r

27. When cooking hamburger, how often do you drain off the fat? Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2

RARELY 3

NEVER 4

USE LEAN OR EXTRA LEAN HAMBURGER 5

DON'T USE HAMBURGER ..... n

DON'T KNOW ..... d

REFUSED ..... r

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37. How often do you add salt to your food at the table? Please do not include salt added in cooking or preparation.

Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY	1
SOMETIMES	2
RARELY	3
NEVER	n
DON'T KNOW	d
REFUSED	r

61. How often do you eat meals, have snacks, or drink something while watching TV or a movie?

Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY	1
SOMETIMES	2
RARELY	3
NEVER	n
DON'T KNOW	d
REFUSED	r

38. When you cook with fat, do you usually use oil or do you use solid fat like butter, margarine, shortening or lard?

PROBE (AS NEEDED): Oils include canola, corn, and olive oils.

SELECT ONLY ONE

OIL	1
SOLID FAT	2
USE BOTH EQUALLY	3
NEVER COOK WITH FAT OR OIL	n
DON'T KNOW	d
REFUSED	r

TIME: |__|__|:|__|__| AM 1
PM 2

SHOPPING BEHAVIORS

Now, a few questions about grocery shopping.

40. How often do you plan your meals before you shop for groceries?

Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

41. When you grocery shop, how often do you use a list?

Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

42. Now, think about buying a food for the first time. How often do you use the Nutrition Facts on the food label to choose foods?

Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

ATTITUDES

I am to going read a series of statements. Tell me whether you agree or disagree with each one of them.

43. First statement . . . My overall diet is generally healthy.

Do you agree or disagree?

SELECT ONLY ONE

AGREE 1
DISAGREE 2
DON'T KNOW ..... d
REFUSED ..... r

44. (Next,) It costs too much for me to eat healthy foods.

READ AS NECESSARY: Do you agree or disagree?

SELECT ONLY ONE

AGREE 1
DISAGREE 2
DON'T KNOW ..... d
REFUSED ..... r

45. I'm too busy to take the time to prepare healthy foods.

READ AS NECESSARY: Do you agree or disagree?

SELECT ONLY ONE

AGREE 1
DISAGREE 2
DON'T KNOW ..... d
REFUSED ..... r

46. I don't think healthy foods taste good.

READ AS NECESSARY: Do you agree or disagree?

SELECT ONLY ONE

AGREE 1
DISAGREE 2
DON'T KNOW ..... d
REFUSED ..... r

47. People in my family don't think healthy foods taste good.

READ AS NECESSARY: Do you agree or disagree?

SELECT ONLY ONE

AGREE 1
DISAGREE 2
DON'T KNOW ..... d
REFUSED ..... r

48. Some people are born to be fat, some thin; there is not much you can do to change this.

READ AS NECESSARY: Do you agree or disagree?

SELECT ONLY ONE

AGREE 1
DISAGREE 2
DON'T KNOW ..... d
REFUSED ..... r

TIME: |__|__|:|__|__| AM 1
PM 2

FOOD AVAILABILITY

Let's change the subject and talk about the kinds of food you have available at home.

49. Do you usually, sometimes, rarely, or never have fruit available at home? Please include canned, dried, fresh, and frozen fruit.

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER .....n
DON'T KNOW .....d
REFUSED .....r

50. Do you usually, sometimes, rarely, or never have dark green vegetables like broccoli, dark green leafy lettuce, kale, Romaine lettuce, spinach, or greens available at home? Please include canned, fresh, and frozen vegetables. Do not include green beans or peas.

PROBE: Dark green vegetables also include bok choy, collard, mustard, and turnip greens, mesclun, and watercress.

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER .....n
DON'T KNOW .....d
REFUSED .....r

51. Do you usually, sometimes, rarely, or never have orange vegetables such as carrots or sweet potatoes available at home?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

52. Do you usually, sometimes, rarely, or never have salty snacks such as potato chips, corn chips, cheese puffs, or pork rinds available at home?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

53. Do you usually, sometimes, rarely, or never have candy available at home?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

54. Do you usually, sometimes, rarely, or never have 1% fat, skim, or fat-free milk available at home?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

55. Do you usually, sometimes, rarely, or never have soft drinks, fruit-flavored drinks, or fruit punch available at home?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

56. Do you usually, sometimes, rarely, or never have whole wheat bread available at home?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

57. Do you usually, sometimes, rarely, or never have cereal like Cheerios, Raisin Bran, Shredded Wheat, Total, Wheaties, or oatmeal available at home?

PROBE (AS NEEDED): This also includes Grape-Nuts, Frosted Mini Wheats, granola and Quaker Oats Squares.

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

TIME: |__|__|:|__|__| AM 1
PM 2

WEIGHT CONTROL

Let's change the subject.

58. During the past 12 months, have you changed anything in your diet to be more healthy?

YES 1
NO 0
DON'T KNOW .....d
REFUSED .....r

59. During the past 12 months, have you done anything to lose weight or keep from gaining weight?

YES 1
NO 0
DON'T KNOW .....d
REFUSED .....r

IF YES TO EITHER Q.58, Q.59, OR BOTH, GO TO Q.60.
OTHERWISE GO TO Q.61.

60. What have you changed or done during the past 12 months to improve your diet, lose weight, or keep from gaining weight?

PROBE: Anything else?

NOTE: IF RESPONDENT SAYS "EAT HEALTHIER," ASK: Can you tell me what you mean by that?

CIRCLE ALL THAT APPLY

EAT LESS FOOD 1
EAT FEWER CALORIES 2
USE ARTIFICIAL SWEETENERS 3
EAT LESS FAT 4
EAT LESS CARBOHYDRATE 5
REDUCE SALT INTAKE 6
INCREASE FRUITS AND VEGETABLES 7
EXERCISE 8
SKIP MEALS 9
GIVE UP CERTAIN FOODS 10
STOP SNACKING 11
GIVE UP DESSERTS 12
DON'T EAT IN THE EVENING 13
JOIN A WEIGHT LOSS PROGRAM 14
PROBE (AS NEEDED): THESE PROGRAMS INCLUDE WEIGHT WATCHERS AND JENNY CRAIG.
DRINK MORE WATER 15
INCREASE WHOLE GRAINS 16
EAT HEALTHIER 17
REDUCE PORTION SIZES 18

OTHER (SPECIFY) 19

DON'T KNOW ..... d
REFUSED ..... r

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Deleted: 5

Deleted: 61. How often do you eat meals, have snacks, or drink something while watching TV or a movie?¶
¶
Would you say usually, sometimes, rarely, or never?¶
¶
SELECT ONLY ONE¶
USUALLY 1¶
SOMETIMES 2¶
RARELY 3¶
NEVER n¶
DON'T KNOW d¶
REFUSED r¶
¶

Deleted: 62. In the last week, that is the past seven days, how many times did you eat breakfast or a meal within two hours after you woke up?¶
¶
|__|__| ENTER NUMBER OF TIMES (PER DAY OR WEEK)¶
¶
DAY 1¶
WEEK 2¶
NEVER EAT MEAL AFTER WAKENING n¶
DON'T KNOW d¶
REFUSED r¶
¶

TIME: |__|__|:|__|__| AM.....1
PM.....2

PHYSICAL ACTIVITY

Now, I'd like to ask a few questions about physical activity.

We are interested in two types of physical activity—vigorous and moderate. Vigorous activities cause large increases in breathing or heart rate while moderate activities cause small increases in breathing or heart rate.

63. Now, think about moderate activities such as brisk walking, bicycling, vacuuming, gardening, or anything else that causes some increase in breathing or heart rate. Do you do moderate activities for at least 10 minutes at a time?

YES 1
NO 0
DON'T KNOW .....d → **GO TO Q.66**
REFUSED .....r

64. How many days per week do you do these moderate activities for at least 10 minutes?

|__|__| DAYS PER WEEK

DON'T KNOW .....d
REFUSED .....r

65. On days when you do moderate activities for at least 10 minutes at a time, how much total time per day do you spend doing these activities?

|__|__| HOURS

|__|__| MINUTES

DON'T KNOW .....d
REFUSED .....r

66. Now think about vigorous activities, such as running, aerobics, heavy yard work, or anything else that causes large increases in breathing or heart rate. Do you do vigorous activities for at least 10 minutes at a time?

YES 1
NO 0
DON'T KNOW ..... d
REFUSED ..... r

→ **GO TO Q.69**

67. How many days per week do you do these vigorous activities for at least 10 minutes at a time?

|__|__| DAYS PER WEEK

DON'T KNOW ..... d
REFUSED ..... r

68. On days when you do vigorous activities for at least 10 minutes at a time, how much total time per day do you spend doing these activities?

|__|__| HOURS

|__|__| MINUTES

DON'T KNOW ..... d
REFUSED ..... r

TIME: |__|__|:|__|__| AM.....1
PM.....2

DEMOGRAPHICS

We're almost finished. I just have a few more questions.

69. How tall are you without shoes?

|__|__| ENTER NUMBER OF FEET
AND
|__|__| ENTER NUMBER OF INCHES

DON'T KNOW .....d
REFUSED .....r

70. How much do you weigh without clothes or shoes?

|__|__|__| ENTER NUMBER OF POUNDS

DON'T KNOW .....d
REFUSED .....r

71. What is your age?

PROBE (AS NEEDED): What is your birthdate?

|__|__| YEARS OLD

OR

|__|__| / |__|__| / |__|__|__|__|
MONTH DAY YEAR

72. **CODE WITHOUT ASKING (ASK ONLY IF NOT OBVIOUS):**
Are you male or female?

MALE.....1→ **GO TO Q.73**
FEMALE 2
DON'T KNOW .....d
REFUSED .....r

NEW Q. 72a. Are you currently pregnant?

YES 1
NO 0
DON'T KNOW ..... d
REFUSED ..... r

73. Would you say your own health is excellent, very good, good, fair or poor?

EXCELLENT.....1
VERY GOOD.....2
GOOD.....3
FAIR 4
POOR.....5
DON'T KNOW .....d
REFUSED .....r

74. Do you consider yourself to be of Hispanic origin?

YES 1
NO 0
DON'T KNOW .....d
REFUSED .....r

75. Which of the following best describes your racial background? Is it White, Black or African American, Asian, American Indian or Alaska Native, or Native Hawaiian or other Pacific Islander?

NOTE: IF RESPONDENT ANSWERS HISPANIC (OR SPANISH), ASK:
Are you White Hispanic or Black Hispanic?

NOTE: IF RESPONDENT ANSWERS MIXED OR MULTIPLE RACES, ASK:
"Which ones" AND CIRCLE ALL THAT APPLY.

CIRCLE ALL THAT APPLY

WHITE.....1
BLACK OR AFRICAN AMERICAN.....2
ASIAN.....3
AMERICAN INDIAN OR ALASKA NATIVE.....4
NATIVE HAWAIIAN OR
PACIFIC ISLANDER 5
OTHER (SPECIFY) 6

_____

DON'T KNOW .....d
REFUSED .....r

76. What was your total household income last month, before taxes? Please include all types of income received by all household members from jobs, public assistance, interest, or any other sources. An estimate is fine.

$ |__|,|__|__|__| LAST MONTH→ **GO TO Q.78**

NONE ..... 0 → **GO TO Q.78**
DON'T KNOW ..... d
REFUSED ..... r

77. Please stop me when I reach your household's total income for last month. Was it . . .

Less than $500, ... 1
$500 to $999, ... 2
$1,000 to $1,499, ... 3
$1,500 to $1,999, ... 4
$2,000 to $2,499, ... 5
$2,500 to $2,999, ... 6
$3,000 or more? 7
DON'T KNOW ..... d
REFUSED ..... r

78. I just have a few more questions. You've been very patient and very helpful.

a. How long have you been on the Food Stamp Program?

INTERVIEWER: IF LESS THAN ONE MONTH, RECORD AS 1 MONTH

|__|__| YEARS |__|__| MONTHS

OTHER (SPECIFY) 99

_____

NOT ON FOOD STAMPS ..... n
DON'T KNOW ..... d
REFUSED ..... r

NEW Q. b. Are you currently receiving WIC benefits?

YES 1
NO 0
DON'T KNOW ..... d

REFUSED .....r

c. Have you taken any nutrition classes?

YES 1
NO 0
DON'T KNOW .....d
REFUSED .....r

→ **GO TO Q.78f**

Deleted: b

Deleted: e

d. Were these classes part of the Food Stamp Program, WIC, or something else?	e. How long ago did you take these classes? YEARS	MONTHS	DON'T KNOW	REFUS
FOOD STAMP PROGRAM 1	|__|__|	|__|__|	d	r
WIC..... 2	|__|__|	|__|__|	d	r
MEDICAL/HEALTH PROVIDER OR DIABETES PROGRAM 3	|__|__|	|__|__|	d	r
SCHOOL/ COMMUNITY/FITNESS PROGRAM 4	|__|__|	|__|__|	d	r
OTHER (SPECIFY) ..... 5 _____	|__|__|	|__|__|	d	r

Deleted: c

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f. Are you familiar with the term . . .

Deleted: e

	YES	NO	DON'T KNOW
1. Food Guide Pyramid	1	0	d
2. 5-a-Day	1	0	d
3. My Pyramid	1	0	d

END. That completes the interview. In order to send you your twenty dollars, I need to record your mailing address. [**INTERVIEWER: RECORD INFORMATION BELOW.**] You should receive your check in about four to five weeks. Thank you so much for your time.

NAME:_____

ADDRESS:_____

_____

CITY/STATE/ZIP:_____

END OF INTERVIEW:

TIME: |__|__|:|__|__| AM..... 1
PM..... 2

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23. When you eat chicken or turkey, how often do you eat it fried? Would you say usually, sometimes, rarely, or never?

INTERVIEWER NOTE: Include other types of poultry such as duck or geese.

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER .....n
DON'T KNOW.....d
REFUSED.....r

24. When you eat chicken or turkey, how often do you eat it without the skin? Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER .....n
DON'T KNOW.....d
REFUSED.....r

Page Break

Page 10: [2] Deleted Rhoda Cohen 10/30/2006 11:19:00 AM

26. Before eating, how often do you trim off the fat from beef or pork? Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER .....n
DON'T KNOW.....d
REFUSED.....r

27. When cooking hamburger, how often do you drain off the fat? Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1

SOMETIMES 2

RARELY 3

NEVER 4

USE LEAN OR EXTRA LEAN HAMBURGER 5

DON'T USE HAMBURGER .....n

DON'T KNOW.....d

REFUSED.....r

APPENDIX D

FINAL DIETARY BEHAVIOR QUESTIONNAIRE WITH RECOMMENDED CHANGES

MPR Reference No.: 6191-600

MATHEMATICA
Policy Research, Inc.

Dietary Behavior Questionnaire

December 29, 2006

MPR ID: |__|__|__|__|__|__|__|__|__|

Interviewer ID: |__|__|__|__|__|__|

Date: |__|__| / |__|__| / |__|__|

Paperwork Reduction Act Statement

A federal agency may not conduct or sponsor, and a person is not required to respond to this collection of information, unless it displays a currently valid OMB control number. Sample members' obligation to reply to this survey is voluntary. Public burden for this survey is estimated to average 23 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the necessary data, and completing and reviewing the collection of information.

Privacy Act Statement

In compliance with the Privacy Act of 1974, the following information is being provided to you: The contractor, Mathematica Policy Research, Inc., will use the information you provide to develop a dietary questionnaire for the U.S. Department of Agriculture. The information you provide will not affect your eligibility for any federal, state, or local government program or receipt of benefits from such programs. The information you provide will be kept confidential and the answers you give will not be identified as yours in any published material.

START TIME: |__|__|:|__|__| AM 1
PM 2

INTRODUCTION

1. My name is [NAME] and I'm from Mathematica Policy Research, Inc., a research company in Princeton, New Jersey. We are doing a study for the U.S. Department of Agriculture to learn more about the kinds of food people eat and how they decide what to eat.

   Your participation in this study is voluntary and will not affect any benefits or services you or your family receive now or in the future. The interview will last about 20 minutes and we will mail you $20 when you complete the survey.

   This interview may be recorded for quality assurance purposes. Before we begin, I'd like to read a statement that explains that everything you tell me is completely confidential. **(READ TEXT FROM CONFIDENTIALITY ACKNOWLEDGEMENT FORM.)**

   Now let's start with food you have had to eat or drink in the past seven days.

FRUIT INTAKE

2. First, let's talk about fruit. Please think about the last week, that is, the past seven days, how many times did you eat canned, dried, fresh, or frozen fruit? Do not include fruit juice.

   You can tell me either the number of times a day or the number of times a week.

   |__|__| TIMES PER DAY

   OR

   |__|__| TIMES PER WEEK

   NEVER EAT FRUIT.....n
   DON'T KNOW .....d
   REFUSED .....r

3. In the last week, that is, the past seven days, how many times did you drink 100% fruit juices, not counting fruit flavored drinks?

You can tell me either the number of times a day or the number of times a week.

PROBE (AS NEEDED): Fruit-flavored drinks include drinks like lemonade, Kool-Aid, Hi-C, or fruit punch.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER DRINK 100% JUICE .....n
DON'T KNOW .....d
REFUSED .....r

VEGETABLE INTAKE

4. In the last week, that is, the past seven days, how many times did you eat vegetables of <u>any</u> kind? Please include canned, fresh, or frozen vegetables.

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT VEGETABLES .....n → **GO TO Q. 9**
DON'T KNOW .....d
REFUSED .....r

5. In the last week, how many times did you eat baked, boiled, or mashed potatoes? Please do not include French fries.

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT THESE KINDS OF POTATOES ..... n

DON'T KNOW ..... d

REFUSED ..... r

6. In the last week, that is, the past seven days, how many times did you eat French fries or fried potatoes?

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT FRENCH FRIES ..... n

DON'T KNOW ..... d

REFUSED ..... r

7. In the last week, that is, the past seven days, how many times did you eat dark green vegetables like broccoli, dark green leafy lettuce, kale, Romaine lettuce, spinach, or greens? Please include canned, fresh, and frozen vegetables. Do not include green beans or peas.

PROBE (AS NEEDED): Dark green vegetables also include bok choy, collard, mustard, and turnip greens, mesclun, and watercress.

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT DARK GREEN VEGETABLES....n

DON'T KNOW .....d

REFUSED .....r

8. In the last week, that is, the past seven days, how many times did you eat orange vegetables like carrots or sweet potatoes?

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT ORANGE VEGETABLES.....n

DON'T KNOW .....d

REFUSED .....r

TIME: |__|__|:|__|__| AM 1

PM 2

DAIRY AND OTHER CALCIUM INTAKE

9. In the last week, that is the past seven days, how many times did you drink plain, chocolate, or flavored milk as a beverage? Please do not include milk in coffee or tea.

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER DRINK MILK..... n

DON'T KNOW ..... d

REFUSED ..... r

10. In the last week, that is the past seven days, how many times did you have milk on cereal?

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER USE MILK ON CEREAL..... n

DON'T KNOW ..... d

REFUSED ..... r

11. In the last week, that is the past seven days, how many times did you eat yogurt? Do not include frozen yogurt.

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT YOGURT.....n
DON'T KNOW .....d
REFUSED .....r

12. In the last week, that is the past seven days, how many times did you eat cheese? Also include cheese in sandwiches, casseroles, enchiladas, tacos, or on pizza?

PROBE (AS NEEDED): We're including cheese like American, cheddar, or Mozzarella or cottage cheese and Ricotta. This does not include Cheese Whiz or imitation cheese.

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT CHEESE .....n
DON'T KNOW .....d
REFUSED .....r

13. In the last week, that is the past seven days, how many times did you have calcium-fortified orange juice or calcium-fortified soy milk?

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

DON'T KNOW ..... d

REFUSED ..... r

GRAIN INTAKE

14. In the last week, that is the past seven days, how many times did you eat a cereal like Cheerios, Raisin Bran, Shredded Wheat, Total, Wheaties, or oatmeal?

PROBE (AS NEEDED): This also includes Grape-Nuts, Frosted Mini Wheats, granola, and Quaker Oats Squares.

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT WHOLE GRAIN CEREAL ..... n

DON'T KNOW ..... d

REFUSED ..... r

15. In the last week, that is the past seven days, how many times did you eat whole grain bread like whole wheat bread or whole grain rye bread?

PROBE (AS NEEDED): This includes whole grain tortillas and whole wheat pita bread.

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT WHOLE GRAIN BREAD ..... n

DON'T KNOW ..... d

REFUSED ..... r

16. In the last week, that is the past seven days, how many times did you eat brown rice or whole wheat pasta?

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT THESE FOODS ..... n

DON'T KNOW ..... d

REFUSED ..... r

TIME: |__|__|:|__|__| AM 1

PM 2

MEAT AND BEAN INTAKE

17. In the last week, that is the past seven days, how many times did you eat chicken or turkey?

PROBE (AS NEEDED): Include other types of poultry such as duck or geese.

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT CHICKEN OR TURKEY ..... n

DON'T KNOW ..... d

REFUSED ..... r

18. In the last week, that is the past seven days, how many times did you eat red meat such as beef, hamburger, or pork?

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT RED MEAT

(SOLID OR GROUND) ..... n

ONLY EAT HAMBURGER ..... 98 → **GO TO Q.20**

DON'T KNOW ..... d

REFUSED ..... r

19. In the last week, that is the past seven days, how many times did you eat bologna, salami, ham, bacon, hot dogs, or other deli meats?

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT DELI MEAT .....n
DON'T KNOW .....d
REFUSED .....r

20. In the last week, that is the past seven days, how many times did you eat fish? This includes canned, fresh, or frozen fish such as tuna, salmon, or catfish, and other kinds of fish.

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT FISH.....n
DON'T KNOW .....d
REFUSED .....r

21. In the last week, that is the past seven days, how many times did you eat eggs?

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT EGGS.....n
DON'T KNOW .....d
REFUSED .....r

22. In the last week, that is the past seven days, how many times did you eat peanut butter?

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT PEANUT BUTTER .....n
DON'T KNOW .....d
REFUSED .....r

23. In the last week, that is the past seven days, how many times did you eat dry beans and peas such as kidney beans, pinto beans, split peas, lentils, or tofu?

PROBE (AS NEEDED): This also includes black beans, black-eyed peas, chickpeas, and soy beans. This also includes white beans and navy beans.

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT DRIED BEANS.....n

DON'T KNOW .....d

REFUSED .....r

TIME: |__|__|:|__|__| AM 1
PM 2

DISCRETIONARY CALORIES AND SALT

24. In the last week, that is the past seven days, excluding diet drinks, how many times did you drink fruit-flavored drinks like lemonade, Kool-Aid, Hi-C, fruit punch or sweetened iced tea?

PROBE (AS NEEDED): That also includes Gatorade, Fruitopia, or Fruitworks.

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

25. In the last week, that is the past seven days, how many times did you drink regular soda or soft drinks? Please do not include diet soda.

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

26. In the last week, that is the past seven days, how many times did you eat snacks like potato chips, corn chips, cheese puffs, or pork rinds?

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT THESE KINDS OF SNACKS ..... n
DON'T KNOW ..... d
REFUSED ..... r

27. In the last week, that is the past seven days, how many times did you eat snacks like salted crackers or pretzels?

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT THESE KINDS OF SNACKS ..... n
DON'T KNOW ..... d
REFUSED ..... r

28. In the last week, that is the past seven days, how many times did you eat food from a fast food restaurant?

READ (AS NEEDED): You can tell me either the number of times a day or the number of times a week.

|__|__| TIMES PER DAY

OR

|__|__| TIMES PER WEEK

NEVER EAT FAST FOOD.....n
DON'T KNOW .....d
REFUSED .....r

TIME: |__|__|:|__|__| AM 1
PM 2

EATING AND FOOD PREPARATION BEHAVIORS

29. In the last week, that is the past seven days, how many days did you eat breakfast or a meal within a few hours after you woke up?

|__| DAYS PER WEEK

NEVER EAT MEAL AFTER WAKENING ..... n
DON'T KNOW ..... d
REFUSED ..... r

30. **(NEW)** Was the food you ate last week, that is in the past seven days, typical of what you usually eat?

YES 1
NO 0
DON'T KNOW ..... d
REFUSED ..... r

31. When you eat dessert how often is it canned, dried, fresh, or frozen fruit?

Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER 4
DON'T EAT DESSERT ..... n
DON'T KNOW ..... d
REFUSED ..... r

32. How often do you eat fruit or vegetables as snacks? Would you say, usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

33. How often do you put butter or margarine on your cooked vegetables? Would you say, usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

34. How often do you use butter, margarine, regular cream cheese, or mayonnaise on your bread, rolls, tortillas, rice, or pasta? Would you say, usually, sometimes, rarely, or never?

PROBE (AS NEEDED): This includes sandwiches, muffins, bagels, biscuits, and pita bread.

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

35. When you use milk, how often is it 1%, skim, or fat-free milk?

Would you say, usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY	1	
SOMETIMES	2	
RARELY	3	
NEVER	n	
NEVER USE MILK	9	→ **GO TO Q. 36**
DON'T KNOW	d	
REFUSED	r	

35a. When you use milk, how often is it 2% or whole milk?

Would you say, usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY	1
SOMETIMES	2
RARELY	3
NEVER	n
DON'T KNOW	d
REFUSED	r

NEW Q. (To replace Q35 and Q35a)
What type of milk do you usually drink or use? Would you say skim or fat free, 1%, 2%, or whole milk?

SELECT ONLY ONE

SKIM/ FAT FREE MILK	1
1% MILK	2
2% MILK	3
WHOLE MILK	4
DON'T USE MILK	n
DON'T KNOW	d
REFUSED	r

36. When you eat chicken or turkey, how often do you eat it fried? Would you say usually, sometimes, rarely, or never?

PROBE (AS NEEDED): Include other types of poultry such as duck or geese.

SELECT ONLY ONE

USUALLY	1	
SOMETIMES	2	
RARELY	3	
NEVER	n	
NEVER EAT CHICKEN OR TURKEY	9	→ **GO TO Q.38**
DON'T KNOW	d	
REFUSED	r	

37. When you eat chicken or turkey, how often do you eat it without the skin? Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY	1	
SOMETIMES	2	
RARELY	3	
NEVER	n	
DON'T KNOW	d	
REFUSED	r	

38. Before eating, how often do you trim off the fat from beef or pork? Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY	1	
SOMETIMES	2	
RARELY	3	
NEVER	n	
NEVER EAT BEEF OR PORK (SOLID OR GROUND)	9	→ **GO TO Q.40**
DON'T KNOW	d	
REFUSED	r	

39. When cooking hamburger, how often do you drain off the fat? Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER 4
USE LEAN OR EXTRA LEAN HAMBURGER 5
DON'T USE HAMBURGER ..... n
DON'T KNOW ..... d
REFUSED ..... r

40. How often do you add salt to your food at the table? Please do not include salt added in cooking or preparation.

Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

41. How often do you eat meals, have snacks, or drink something while watching TV or a movie?

Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY	1
SOMETIMES	2
RARELY	3
NEVER	n
DON'T KNOW	d
REFUSED	r

42. When you cook with fat, do you usually use oil or do you use solid fat like butter, margarine, shortening or lard?

PROBE (AS NEEDED): Oils include canola, corn, and olive oils.

SELECT ONLY ONE

OIL	1
SOLID FAT	2
USE BOTH EQUALLY	3
NEVER COOK WITH FAT OR OIL	n
DON'T KNOW	d
REFUSED	r

TIME: |__|__|:|__|__| AM 1
PM 2

SHOPPING BEHAVIORS

Now, a few questions about grocery shopping.

43. How often do you plan your meals before you shop for groceries?

Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

44. When you grocery shop, how often do you use a list?

Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

45. Now, think about buying a food for the first time. How often do you use the Nutrition Facts on the food label to choose foods?

Would you say usually, sometimes, rarely, or never?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

ATTITUDES

I am to going read a series of statements. Tell me whether you agree or disagree with each one of them.

46. First statement . . . My overall diet is generally healthy.

Do you agree or disagree?

SELECT ONLY ONE

AGREE 1
DISAGREE 2
DON'T KNOW ..... d
REFUSED ..... r

47. (Next,) It costs too much for me to eat healthy foods.

READ AS NECESSARY: Do you agree or disagree?

SELECT ONLY ONE

AGREE 1
DISAGREE 2
DON'T KNOW ..... d
REFUSED ..... r

48. I'm too busy to take the time to prepare healthy foods.

READ AS NECESSARY: Do you agree or disagree?

SELECT ONLY ONE

AGREE 1
DISAGREE 2
DON'T KNOW ..... d
REFUSED ..... r

49. I don't think healthy foods taste good.

READ AS NECESSARY: Do you agree or disagree?

SELECT ONLY ONE

AGREE 1
DISAGREE 2
DON'T KNOW ..... d
REFUSED ..... r

50. People in my family don't think healthy foods taste good.

READ AS NECESSARY: Do you agree or disagree?

SELECT ONLY ONE

AGREE 1
DISAGREE 2
DON'T KNOW ..... d
REFUSED ..... r

51. Some people are born to be fat, some thin; there is not much you can do to change this.

READ AS NECESSARY: Do you agree or disagree?

SELECT ONLY ONE

AGREE 1
DISAGREE 2
DON'T KNOW ..... d
REFUSED ..... r

TIME: |__|__|:|__|__| AM 1
PM 2

FOOD AVAILABILITY

Let's change the subject and talk about the kinds of food you have available at home.

52. Do you usually, sometimes, rarely, or never have fruit available at home? Please include canned, dried, fresh, and frozen fruit.

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER .....n
DON'T KNOW .....d
REFUSED .....r

53. Do you usually, sometimes, rarely, or never have dark green vegetables like broccoli, dark green leafy lettuce, kale, Romaine lettuce, spinach, or greens available at home? Please include canned, fresh, and frozen vegetables. Do not include green beans or peas.

PROBE: Dark green vegetables also include bok choy, collard, mustard, and turnip greens, mesclun, and watercress.

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER .....n
DON'T KNOW .....d
REFUSED .....r

54. Do you usually, sometimes, rarely, or never have orange vegetables such as carrots or sweet potatoes available at home?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

55. Do you usually, sometimes, rarely, or never have salty snacks such as potato chips, corn chips, cheese puffs, or pork rinds available at home?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

56. Do you usually, sometimes, rarely, or never have candy available at home?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

57. Do you usually, sometimes, rarely, or never have 1% fat, skim, or fat-free milk available at home?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

58. Do you usually, sometimes, rarely, or never have soft drinks, fruit-flavored drinks, or fruit punch available at home?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

59. Do you usually, sometimes, rarely, or never have whole wheat bread available at home?

SELECT ONLY ONE

USUALLY 1
SOMETIMES 2
RARELY 3
NEVER ..... n
DON'T KNOW ..... d
REFUSED ..... r

60. Do you usually, sometimes, rarely, or never have cereal like Cheerios, Raisin Bran, Shredded Wheat, Total, Wheaties, or oatmeal available at home?

PROBE (AS NEEDED): This also includes Grape-Nuts, Frosted Mini Wheats, granola and Quaker Oats Squares.

SELECT ONLY ONE

USUALLY	1
SOMETIMES	2
RARELY	3
NEVER	n
DON'T KNOW	d
REFUSED	r

TIME: |__|__|:|__|__| AM 1

PM 2

WEIGHT CONTROL

Let's change the subject.

61. During the past 12 months, have you changed anything in your diet to be more healthy?

YES 1

NO 0

DON'T KNOW ..... d

REFUSED ..... r

62. During the past 12 months, have you done anything to lose weight or keep from gaining weight?

YES 1

NO 0

DON'T KNOW ..... d

REFUSED ..... r

IF YES TO EITHER Q.61, Q.62, OR BOTH, GO TO Q.63.
OTHERWISE GO TO Q.64.

63. What have you changed or done during the past 12 months to improve your diet, lose weight, or keep from gaining weight?

PROBE: Anything else?

NOTE: IF RESPONDENT SAYS "EAT HEALTHIER," ASK: Can you tell me what you mean by that?

CIRCLE ALL THAT APPLY

EAT LESS FOOD 1
EAT FEWER CALORIES 2
USE ARTIFICIAL SWEETENERS 3
EAT LESS FAT 4
EAT LESS CARBOHYDRATE 5
REDUCE SALT INTAKE 6
INCREASE FRUITS AND VEGETABLES 7
EXERCISE 8
SKIP MEALS 9
GIVE UP CERTAIN FOODS 10
STOP SNACKING 11
GIVE UP DESSERTS 12
DON'T EAT IN THE EVENING 13
JOIN A WEIGHT LOSS PROGRAM 14

PROBE (AS NEEDED): THESE PROGRAMS INCLUDE WEIGHT WATCHERS AND JENNY CRAIG.

DRINK MORE WATER 15
INCREASE WHOLE GRAINS 16
EAT HEALTHIER 17
REDUCE PORTION SIZES 18
OTHER (SPECIFY) 19

_____

DON'T KNOW ..... d
REFUSED ..... r

TIME: |__|__|:|__|__| AM.....1

PM.....2

PHYSICAL ACTIVITY

Now, I'd like to ask a few questions about physical activity.

We are interested in two types of physical activity—vigorous and moderate. Vigorous activities cause large increases in breathing or heart rate while moderate activities cause small increases in breathing or heart rate.

64. Now, think about moderate activities such as brisk walking, bicycling, vacuuming, gardening, or anything else that causes some increase in breathing or heart rate. Do you do moderate activities for at least 10 minutes at a time?

YES 1
NO 0
DON'T KNOW .....d
REFUSED .....r

→ **GO TO Q.67**

65. How many days per week do you do these moderate activities for at least 10 minutes?

|__|__| DAYS PER WEEK

DON'T KNOW .....d
REFUSED .....r

66. On days when you do moderate activities for at least 10 minutes at a time, how much total time per day do you spend doing these activities?

|__|__| HOURS

|__|__| MINUTES

DON'T KNOW .....d
REFUSED .....r

67. Now think about vigorous activities, such as running, aerobics, heavy yard work, or anything else that causes large increases in breathing or heart rate. Do you do vigorous activities for at least 10 minutes at a time?

YES 1
NO 0
DON'T KNOW ..... d → **GO TO Q.70**
REFUSED ..... r

68. How many days per week do you do these vigorous activities for at least 10 minutes at a time?

|__|__| DAYS PER WEEK

DON'T KNOW ..... d
REFUSED ..... r

69. On days when you do vigorous activities for at least 10 minutes at a time, how much total time per day do you spend doing these activities?

|__|__| HOURS

|__|__| MINUTES

DON'T KNOW ..... d
REFUSED ..... r

TIME: |__|__|:|__|__| AM.....1
PM.....2

DEMOGRAPHICS

We're almost finished. I just have a few more questions.

70. How tall are you without shoes?

|__|__| ENTER NUMBER OF FEET
AND
|__|__| ENTER NUMBER OF INCHES

DON'T KNOW .....d
REFUSED .....r

71. How much do you weigh without clothes or shoes?

|__|__|__| ENTER NUMBER OF POUNDS

DON'T KNOW .....d
REFUSED .....r

72. What is your age?

PROBE (AS NEEDED): What is your birth date?

|__|__| YEARS OLD

OR

|__|__| / |__|__| / |__|__|__|__|
MONTH DAY YEAR

73. **CODE WITHOUT ASKING (ASK ONLY IF NOT OBVIOUS):**
Are you male or female?

MALE.....1→ **GO TO Q.74**
FEMALE 2
DON'T KNOW .....d
REFUSED .....r

73a **(NEW).** Are you currently pregnant?

YES 1
NO 0
DON'T KNOW .....d
REFUSED .....r

74. Would you say your own health is excellent, very good, good, fair or poor?

EXCELLENT.....1
VERY GOOD.....2
GOOD.....3
FAIR 4
POOR.....5
DON'T KNOW .....d
REFUSED .....r

75. Do you consider yourself to be of Hispanic origin?

YES 1
NO 0
DON'T KNOW .....d
REFUSED .....r

76. Which of the following best describes your racial background? Is it White, Black or African American, Asian, American Indian or Alaska Native, or Native Hawaiian or other Pacific Islander?

NOTE: IF RESPONDENT ANSWERS HISPANIC (OR SPANISH), ASK:
Are you White Hispanic or Black Hispanic?

NOTE: IF RESPONDENT ANSWERS MIXED OR MULTIPLE RACES, ASK:
"Which ones" AND CIRCLE ALL THAT APPLY.

	CIRCLE ALL THAT APPLY
WHITE	1
BLACK OR AFRICAN AMERICAN	2
ASIAN	3
AMERICAN INDIAN OR ALASKA NATIVE	4
NATIVE HAWAIIAN OR PACIFIC ISLANDER	5
OTHER (SPECIFY) _____	6
DON'T KNOW	d
REFUSED	r

77. What was your total household income last month, before taxes? Please include all types of income received by all household members from jobs, public assistance, interest, or any other sources. An estimate is fine.

$ |__|,|__|__|__| LAST MONTH → **GO TO Q.79**

NONE	0	→ **GO TO Q.79**
DON'T KNOW	d	
REFUSED	r	

78. Please stop me when I reach your household's total income for last month. Was it . . .

Less than $500, ... 1
$500 to $999, ... 2
$1,000 to $1,499, ... 3
$1,500 to $1,999, ... 4
$2,000 to $2,499, ... 5
$2,500 to $2,999, ... 6
$3,000 or more? 7
DON'T KNOW ..... d
REFUSED ..... r

79. I just have a few more questions. You've been very patient and very helpful.

a. How long have you been on the Food Stamp Program?

INTERVIEWER: IF LESS THAN ONE MONTH, RECORD AS 1 MONTH.

|__|__| YEARS |__|__| MONTHS

OTHER (SPECIFY) 99

_____

NOT ON FOOD STAMPS ..... n
DON'T KNOW ..... d
REFUSED ..... r

b. **(NEW)** Are you currently receiving WIC benefits?

YES 1
NO 0
DON'T KNOW ..... d
REFUSED ..... r

c. Have you taken any nutrition classes?

YES 1
NO 0
DON'T KNOW ..... d
REFUSED ..... r

→ **GO TO Q.79f**

d. Were these classes part of the Food Stamp Program, WIC, or something else?	e. How long ago did you take these classes?			
	YEARS	MONTHS	DON'T KNOW	REFUSED
FOOD STAMP PROGRAM 1	|__|__|	|__|__|	d	r
WIC.....2	|__|__|	|__|__|	d	r
MEDICAL/HEALTH PROVIDER/ DIABETES PROGRAM …… .3	|__|__|	|__|__|	d	r
SCHOOL/ COMMUNITY/FITNESS PROGRAM…… 4	|__|__|	|__|__|	d	r
OTHER (SPECIFY) .....5 _____	|__|__|	|__|__|	d	r

f. Are you familiar with the term . . .

	YES	NO	DON'T KNOW
1. Food Guide Pyramid	1	0	d
2. 5-a-Day	1	0	d
3. My Pyramid	1	0	d

END. That completes the interview. In order to send you your twenty dollars, I need to record your mailing address. [**INTERVIEWER: RECORD INFORMATION BELOW.**] You should receive your check in about four to five weeks. Thank you so much for your time.

NAME:_____

ADDRESS:_____

_____

CITY/STATE/ZIP:_____

END OF INTERVIEW:

TIME: |__|__|:|__|__| AM 1

PM 2