

U.S. Food and Drug Administration

Food Safety Survey
OMB Control No. 0910-0345

SUPPORTING STATEMENT Part B: Statistical Methods

1. Respondent Universe and Sampling Methods

Unlike previous Food Safety Surveys that only used a single sampling frame of all telephone households in the United States, this wave of the survey will use a dual-frame (Landline and Cell phone) sampling plan. The plan calls for a landline household sample of 2,400 participants and an additional sample of 1,600 participants from cell phones. One half of the landline sample (1,200) and the cell sample (800) will be randomly assigned to one of the two survey versions. Each frame is explained below.

Landline frame:

The participant universe for this survey is all landline telephone households in the United States. Eligible households are defined as those containing one or more adults who have the following characteristics: aged 18 years or older, speak English or Spanish, sufficiently good health for a telephone interview.

Similar to all previous Food Safety Surveys, households will be selected using a Random Digit Dialing (RDD) procedure by employing GENESYS, a database-assisted sampling system. The GENESYS system uses a database of working residential telephone banks for the entire United States to produce a single-stage random sample of residential telephone numbers. RDD samples from the GENESYS system eliminate the reduction in precision caused by the multi-stage cluster designs of traditional RDD procedures. GENESYS samples are widely accepted because of their methodological rigor and efficiency.

Cell Phone Sample Frame:

The participant universe for this survey is all cell phones in the United States. Eligible participants are defined as: aged 18 years or older, speak English or Spanish, sufficiently good health for a telephone interview.

The cell phone sample frame will be supplied by MSG. MSG provides a comprehensive sampling frame for the selection of cellular RDD samples. Wireless frame construction begins with the most recent monthly Telcordia Terminating Point Master (TPM) data file. Telcordia Technologies is the leading provider of software, database, and services for the Telecommunications Industry. They offer a variety of products and services including ones that MSG licenses for the construction of its sampling-based products and databases. Specifically, MSG uses Telcordia products for the identification of wire line, VoIP, and wireless thousand series blocks that are used in the creation of the wire line

and wireless RDD databases. The TPM is Telcordia's master file of NPA-NXX and Block-ID records for the North American Number Plan. It contains at least one record per NPA-NXX. For prefixes NPA-NXXs, where 1000-block number pooling is in effect, this file also provides information for individual 1000-blocks. This allows users to identify those 1000-blocks that have either not been assigned for service or that have been allocated to different service providers.

Selection of wireless prefixes and blocks occurs by selecting all records where the NXXTYPE is dedicated to cellular devices, shared "plain old telephone service" (POTS) and cellular, PCS, shared POTS and PCS, paging (in mixed or shared blocks), mobile, and miscellaneous. Using the TPM file as a source, all 1000-series telephone blocks dedicated to cellular devices are isolated. From the identified 1000 series telephone blocks dedicated to cellular devices, MSG generates a random sample of possible telephone numbers. New exchanges/1000-blocks are included in the frame. They have an activation date on or before the release date associated with the release date of the wireless frame.

Exchange records for which there were no 1000-block records are expanded to ten (10) 1000-block records. This file is then further expanded to a file of 1000-blocks, 10 100-block records per 1000-blocks containing the same information as the 1000-block record. "Mixed" or "shared" 100-blocks are then compared to MSG's list-assisted RDD database. 100-blocks with no listed numbers are retained in the wireless frame and 100-blocks containing listed numbers on the RDD frame are removed. The result is a frame of 100-blocks that is mutually exclusive of MSG's list-assisted RDD frame while allowing coverage in prefixes and 1000-blocks that potentially provide both landline and wireless service.

At this point, the frame size has been fixed and divided into equal-sized subsets of ten-digit numbers. Within each of the subsets, one number is selected at random giving all numbers an equal probability of selection.

The sampling interval is calculated by dividing the universe of all possible numbers by the number of records desired, thus specifying the size of the frame subdivisions. The file of 100-blocks is sorted by FIPS Code, Carrier name, and 100-block. The intent is to provide a stratification that will yield a sample that is representative both geographically and by large and small carrier. A sampling interval is determined by dividing the universe of eligible 100-blocks by the desired sample size. From a random start within the first sampling interval, a systematic nth selection of 100-blocks is performed and a 2-digit random number between 00 and 99 is appended to each selected 100-block stem.

An Operating Company Number (OCN) for the 1000-block is retained on each record. The Carrier Name has been attached to each record based on a Telcordia table of OCN codes and names. Carrier Names and codes (OCN) frequently do not reflect mergers and acquisitions. These acquisitions may be national in scope or state specific. For example, Southwestern Bell Wireless and parts of Pacific Bell Wireless were bought by Cingular but still reflect the original carrier name and OCN. Carrier Names and codes are

frequently different by state, particularly for large wireless companies offering national or almost national service. These companies also frequently distinguish different corporate entities between their landline, cellular, and paging divisions. Therefore, a unique OCN will not always represent a unique carrier and vice versa. The carrier identification is for the 1000- block and will be inaccurate for subscribers who have ported their cell phone number to a different cellular provider.

Screening for disconnects is not available for wireless sample since it would violate Telephone Consumer Protection Act of 1991 rules prohibiting dialing wireless numbers using automated telephone systems. Landline numbers that have been ported to wireless service will not be included since they are on the RDD frame, unless they are wireless numbers that have been ported to landline service.

Sampling:

The survey will oversample Hispanics and African-Americans. The target number of Hispanics and African-American is, 400 or 10% each out of 4,000 interviews. The 2010 US population percentages of African-American and Hispanic Americans are approximately 13.6 and 16.3 percent, respectively. Practically, these groups are less likely to be contacted and to cooperate in landline segment surveys. As a result, the sampling plan will over-sample these population groups.

Tied to the sample design is the construction of the sampling weights. The FSS study includes two frames – the frame for both landline households and the cell phone frame. The landline frame consists of the area codes and exchanges for landline phones. The cell phone frame consists of the area codes and exchanges dedicated to cell phones.

Post-stratified adjustment will be made for age, gender, education, and race/ethnicity. A sample size of 4,000 is needed to adequately perform all of the sub-analyses that are needed for the proposed Healthy People 2020 objective relating to consumer practices. This objective requires that we look at disparities in safe food handling habits among different populations. Some of these sub-analyses of interest include showing change over time for: Blacks or African-Americans, older adults (60+), and households with young children (<5 years old). A power analysis was conducted to determine the sample size needed to analyze changes in these sub-groups.

Identification of the designated participant will be achieved by using the last birthday method for the landline survey. Once household eligibility (for landlines) has been established, interviewers will ask the person who answers the phone to speak with the adult age 18 and over in the household has had the most recent birthday. This method has been used for all five waves of the Food Safety Survey.

Unlike landlines, cell phones are generally individual devices, so the person who answered the phone is likely to be the only eligible user of the phone. However, there are some cases of shared user cell phones. In the screening questionnaire we will ask the participant if the cell phone we just dialed is shared with anyone else in their household.

If the response is “yes,” we will follow the same “most recent birthday” approach described above for landline participant selection. We will make sure the participant is at least 18 years old prior to conducting the interview.

2. Procedures for the Collection of Information

Unlike previous Food Safety Surveys that only used a single sampling frame of all telephone households in the United States, this wave of the survey will use a dual-frame (Landline and Cell phone) sampling plan. The plan calls for a landline household sample of 2,400 participants and an additional sample of 1,600 participants from cell phones. One half of the landline sample (1,200) and the cell sample (800) will be randomly assigned to one of the two survey versions. Each frame is explained below.

Landline frame:

The participant universe for this survey is all landline telephone households in the United States. Eligible households are defined as those containing one or more adults who have the following characteristics: aged 18 years or older, speak English or Spanish, sufficiently good health for a telephone interview.

Similar to all previous Food Safety Surveys, households will be selected using a Random Digit Dialing (RDD) procedure by employing GENESYS, a database-assisted sampling system. The GENESYS system uses a database of working residential telephone banks for the entire United States to produce a single-stage random sample of residential telephone numbers. RDD samples from the GENESYS system eliminate the reduction in precision caused by the multi-stage cluster designs of traditional RDD procedures. GENESYS samples are widely accepted because of their methodological rigor and efficiency.

Cell Phone Sample Frame:

The participant universe for this survey is all cell phones in the United States. Eligible participants are defined as: aged 18 years or older, speak English or Spanish, sufficiently good health for a telephone interview.

The cell phone sample frame will be supplied by MSG. MSG provides a comprehensive sampling frame for the selection of cellular RDD samples. Wireless frame construction begins with the most recent monthly Telcordia Terminating Point Master (TPM) data file. Telcordia Technologies is the leading provider of software, database, and services for the Telecommunications Industry. They offer a variety of products and services including ones that MSG licenses for the construction of its sampling-based products and databases. Specifically, MSG uses Telcordia products for the identification of wire line, VoIP, and wireless thousand series blocks that are used in the creation of the wire line and wireless RDD databases. The TPM is Telcordia’s master file of NPA-NXX and Block-ID records for the North American Number Plan. It contains at least one record per NPA-NXX. For prefixes NPA-NXXs, where 1000-block number pooling is in effect, this file also provides information for individual 1000-blocks. This allows users to

identify those 1000-blocks that have either not been assigned for service or that have been allocated to different service providers.

Selection of wireless prefixes and blocks occurs by selecting all records where the NXXTYPE is dedicated to cellular devices, shared “plain old telephone service” (POTS) and cellular, PCS, shared POTS and PCS, paging (in mixed or shared blocks), mobile, and miscellaneous. Using the TPM file as a source, all 1000-series telephone blocks dedicated to cellular devices are isolated. From the identified 1000 series telephone blocks

a stratification that will yield a sample that is representative both geographically and by large and small carrier. A sampling interval is determined by dividing the universe of eligible 100-blocks by the desired sample size. From a random start within the first sampling interval, a systematic nth selection of 100-blocks is performed and a 2-digit random number between 00 and 99 is appended to each selected 100-block stem.

dedicated to cellular devices, MSG generates a random sample of possible telephone numbers. New exchanges/1000-blocks are included in the frame. They have an activation date on or before the release date associated with the release date of the wireless frame.

Exchange records for which there were no 1000-block records are expanded to ten (10) 1000-block records. This file is then further expanded to a file of 1000-blocks, 10 100-block records per 1000-blocks containing the same information as the 1000-block record. “Mixed” or “shared” 100-blocks are then compared to MSG’s list-assisted RDD database. 100-blocks with no listed numbers are retained in the wireless frame and 100-blocks containing listed numbers on the RDD frame are removed. The result is a frame of 100-blocks that is mutually exclusive of MSG’s list-assisted RDD frame while allowing coverage in prefixes and 1000-blocks that potentially provide both landline and wireless service.

At this point, the frame size has been fixed and divided into equal-sized subsets of ten-digit numbers. Within each of the subsets, one number is selected at random giving all numbers an equal probability of selection.

The sampling interval is calculated by dividing the universe of all possible numbers by the number of records desired, thus specifying the size of the frame subdivisions. The file of 100-blocks is sorted by FIPS Code, Carrier name, and 100-block. The intent is to provide An Operating Company Number (OCN) for the 1000-block is retained on each record. The Carrier Name has been attached to each record based on a Telcordia table of OCN codes and names. Carrier Names and codes (OCN) frequently do not reflect mergers and acquisitions. These acquisitions may be national in scope or state specific. For example, Southwestern Bell Wireless and parts of Pacific Bell Wireless were bought by Cingular but still reflect the original carrier name and OCN. Carrier Names and codes are frequently different by state, particularly for large wireless companies offering national or almost national service. These companies also frequently distinguish different corporate entities between their landline, cellular, and paging divisions. Therefore a

unique OCN will not always represent a unique carrier and vice versa. The carrier identification is for the 1000- block and will be inaccurate for subscribers who have ported their cell phone number to a different cellular provider.

Screening for disconnects is not available for wireless sample since it would violate Telephone Consumer Protection Act of 1991 rules prohibiting dialing wireless numbers using automated telephone systems. Landline numbers that have been ported to wireless service will not be included since they are on the RDD frame, unless they are wireless numbers that have been ported to landline service.

Sampling:

The survey will oversample Hispanics and African-Americans. The target number of Hispanics and African-American is, 400 or 10% each out of 4,000 interviews. The 2010 US population percentages of African-American and Hispanic Americans are approximately 13.6 and 16.3 percent, respectively. Practically, these groups are less likely to be contacted and to cooperate in landline segment surveys. As a result, the sampling plan will over-sample these population groups.

Tied to the sample design is the construction of the sampling weights. The FSS study includes two frames – the frame for both landline households and the cell phone frame. The landline frame consists of the area codes and exchanges for landline phones. The cell phone frame consists of the area codes and exchanges dedicated to cell phones.

Post-stratified adjustment will be made for age, gender, education, and race/ethnicity.

A sample size of 4,000 is needed to adequately perform all of the sub-analyses that are needed for the proposed Healthy People 2020 objective relating to consumer practices. This objective requires that we look at disparities in safe food handling habits among different populations. Some of these sub-analyses of interest include showing change over time for: Blacks or African-Americans, older adults (60+), and households with young children (<5 years old). A power analysis was conducted to determine the sample size needed to analyze changes in these sub-groups.

Identification of the designated participant will be achieved by using the last birthday method for the landline survey. Once household eligibility (for landlines) has been established, interviewers will ask the person who answers the phone to speak with the adult age 18 and over in the household has had the most recent birthday. This method has been used for all five waves of the Food Safety Survey.

Unlike landlines, cell phones are generally individual devices, so the person who answered the phone is likely to be the only eligible user of the phone. However, there are some cases of shared user cell phones. In the screening questionnaire we will ask the participant if the cell phone we just dialed is shared with anyone else in their household. If the response is “yes,” we will follow the same “most recent birthday” approach described above for landline participant selection. We will make sure the participant is at least 18 years old prior to conducting the interview.

3. Methods to Maximize Response Rates and Deal with Non-response

To help ensure that the response rate is as high as possible, the Contractor will employ all appropriate methods demonstrated in the research literature on survey methodology.

These procedures include the following:

- Design a questionnaire that minimizes participant burden (short in length, written in easy-to-understand language).
- Test the draft questionnaire using cognitive interviews to ensure that participants can properly understand the questions and that the response options are robust.
- Test the draft questionnaire in a pre-test to ensure that it is working as expected.
- After the landline sample is drawn, all households for which an address can be matched to the telephone number will be sent a letter letting them know that they have been selected to participate in the survey (Attachment B).
- In addition to general training, all interviewers and supervisors will be trained on the specifics of the survey by a member of the project's professional staff. This will include an explanation of the importance and purpose of the survey, as well as a thorough review and practice reading of the entire survey instrument.
- A Spanish-speaking interviewer will re-contact all households in which the interview could not be completed because of a language barrier. Households in which neither English nor Spanish is spoken sufficiently to allow for completion of the interview will be excluded.
- All interviews are continuously monitored by supervisors who listen to a portion of each call to ensure that each interview is conducted properly. Production rates and sample dispositions will be monitored each day to detect and resolve any problems or discrepancies quickly.
- A reasonable number of call attempts will be made to determine whether an "initial contact"—the establishment of the identity of a telephone number (residential or non-residential)—is made. For example, if the first three attempts received no response and the fourth attempt received a busy signal, the number will be called for a few more times to try to make an initial contact because the fourth attempt suggests this number has the potential of being a residential number. Only when there is certainty that a number is not a residential number will the limit of five attempts be applied. If a voicemail or answering machine indicates the number is residential, then an initial contact is considered made.
- No-answers after these attempts at initial contact will be regarded as non-households and eliminated from the sample. Households that initially refuse to participate will be sent a letter acknowledging the initial contact and asking again for the household's

participation. Addresses will be obtained through a commercial list of known telephone number/address combinations. The letter will identify FDA as the sponsor of the survey, give a brief explanation of the study topic, and stress the importance of participation. Refusal conversion calls will be scheduled several days after the letters are sent out, in order to give the letter ample time to arrive, but close enough to the arrival date to be remembered by the participant (Attachment C).

- When possible, screening and extended interviews with designated participants will be completed during the same call. If the participant is not available at the time of the screening call, additional callbacks will be made in an effort to complete the interview. Participants who are not reached will be included in the denominator for the calculation of the response rate. Participants who initially refused will be sent a letter encouraging participation if an address match can be made.
- To determine if there are any systematic differences between those who participate in the FSS and non-responders, FDA will conduct a non-response analysis. Fifty initial refusals (i.e., non-participants) who have refused to participate twice; once when first called and a second time when called back, will be asked to take a shortened questionnaire consisting of core questions and a subset of the demographic questions (Attachment D).

4. Test of Procedures or Methods to be Undertaken

FDA plans to perform two tests to minimize collection burden on participants and improve quality of collected information. The first test consists of cognitive interviews; the primary purpose of these interviews is to understand the thinking processes that participants use to answer the survey questions. Nine (9) cognitive interviews will be conducted to refine the survey questionnaire.

The Food Safety Survey will be pre-tested with up to 18 participants shortly after OMB approval of the information collection is expected. Scheduling the pretest close to the beginning of data collection will gain efficiency by using interviewer training for both the pretest and the complete data collection. Because the survey is based largely on questions from the previous surveys, 18 pretests should be adequate to estimate the time required to complete the interview, to assure clarity of the added or changed instructions, questions, and response categories, and to check the CATI programming for correct skips and other procedures.

Representatives of FDA and the contractor will monitor the pretest interviews. Few changes to the questionnaire are expected from the pre-test, because we want to compare responses with identical questions asked on previous surveys. OMB will be provided with copies of the final questionnaires prior to implementation of the study.

5. Individuals Consulted on Statistical Aspects and Individuals Collecting and/or Analyzing Data

The contractor, IPSOS, will collect the information on behalf of FDA as a task order under the Quick Turn Around Survey Data Collection contract. Dr. Alan Roshwalb is the Project Leader for IPSOS. Data analysis and dissemination will be led by Amy Lando, MPP, Consumer Science Specialist at FDA, telephone 240-402-1996.