Supporting Statement B For:

Awareness and Beliefs about Cancer Survey (NCI)

OMB No. 0925-0684, Expiration Date: 11/30/2014

April 16, 2014

Yellow highlights indicate revisions to this project from the previously approved submission in 2013.

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B.   STATISTICAL METHODS

The Awareness and Beliefs about Cancer (ABC) Study is being conducted in multiple countries around the world. It is anticipated that the results of the ABC Study will be analyzed both for US respondents only and also combined with data collected internationally. Therefore, the US data collection sampling strategy, data collection methodology and survey instruments are intended to align with data collected in other countries.

B.1   Respondent Universe and Sampling Methods

Sampling Frame

The target population for the ABC Study is adults aged 50 and up living in private households in the United States. Because this is a random digit dial (RDD) study being conducted by telephone, the sampling frame will be households with landlines and individuals with cell phones. The assumption of RDD telephone surveys is that, by drawing a sample from the universe of all telephone numbers that are used in the country, researchers effectively draw a random selection of households and individuals.

The approaches to contacting participants at landlines and cell phones will differ slightly, reflecting that landlines are typically used by multiple people in a household whereas each person in a home may have his or her own cell phone. Both households and cell phone users will be selected using plus-digit dialing. This method takes a systematic random selection of telephone numbers from national telephone directories and replaces the last two digits of the telephone number with randomly generated digits.

Telephone information for both types of phone lines will be purchased from Survey Sampling International (SSI). This file will contain numbers only, and no personally identifiable information.

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For the landline sampling, two random digits will then be appended to obtain a randomly generated telephone number in that area; for the cell phone sample, a random selection of complete cell phone numbers will be bought from SSI, and hand-dialled by interviewers. The investigators acknowledge the probability that some members of the target population (U.S. population) will not have phones. However, we expect the proportion of individuals with no telephone to be negligible. Of the total 1,500 anticipated participants in the study, 1,200 are expected to be recruited from the landline sample and the other 300 individuals will be recruited from cell phones.

Recruitment

Landline: Only one individual per household in the landline portion of the data collection will be selected for the survey. For households with more than one resident aged 50 or over, the Rizzo method will be used to select one at random to complete the interview (Rizzo, Brick, & Park, 2004). Under the Rizzo method, once the number of eligible household members is known (number aged 50+) a random selection is made:

- One adult household: the one adult is selected;

- Two adult household: the CATI randomly selects either the screener respondent or the other adult;

- Three or more adults in household: the CATI randomly selects either the screener respondent or one of the other adults. If one of the other adults is selected, then the 'next birthday' rule is used (excluding the screener respondent). The next birthday method selects the person in the household who has the next birthday.

The advantage of using the Rizzo method is that, by not asking for next birthday in all cases, refusal rates are lower as less screening is required. This approach also helps to eliminate any

self-selection bias: survey literature shows that the number of times the person with the next birthday is also the person who answered the interviewer's call initially is higher than would be expected (Rizzo, et al., 2004).

Cell phone: Unlike the household recruitment, the cell phone process allows for only one potentially eligible participant – the person who answers the phone. If that person is eligible and willing to respond to the verbally administered questionnaire, he or she will be included in the study; otherwise, the call will be ended. Given the difference in identifying a cell phone participant, the survey script is modified slightly to apply to the situation. Notably, a question ascertaining that the person answering the phone is not operating a vehicle, which would present safety concerns, will be posed, and language asking how many individuals in the household are 50 and older will not be used with this sample.

Beyond these points, the screening process that ascertains age, hearing and language skills remains the same for both samples. The script for cell phone and landline samples diverge again at the end of the questionnaire, with additional questions about phone usage asked of cell phone users. These additions are needed for data weighting purposes.

Sample Size

The goal of ABC will be to obtain 1,500 completed interviews within one year. This sample size was derived based on statistical power goals. A sample of 1,500 will provide estimates that are reliable to around +/-2% of survey findings at the 95% level of confidence.

Given the target audience and the potential proportion of "not in service" numbers and based on response rates achieved in other countries, the starting sample will consist of 70,000 records. Due to the nature of the way the telephone numbers are created, we will lose a large proportion of these as they will be unusable (businesses or not in service, etc.). There will also

be a proportion where we either are unable to make contact or where we cannot ask the screening questions for some reason (such as the respondent not speaking English). Because of all these factors, we anticipate approximately 14,000 of the 70,000 households and individuals we attempt to contact to be eligible for the study. Once the screening questions are asked and we have identified that there is a person aged 50+ in the household or on the cell phone, the response rate for the main study is anticipated to be in the 50% range[1]. Table B.1-1 illustrates the sampling, eligibility and response expectations.

Table B.1-1

Starting sample of telephone numbers	70,000
Unusable numbers	22,000
Household/individuals eligibility undetermined (no answer, hang up, screening incomplete, etc.)	34,000
Household eligible determined (screening completed)	14,000
Eligible Households (at least 1 adult age 50+)	3,000
Completed interviews	1,500

Weighting

Two forms of weights will be applied to the survey results:

- **design weights** will be applied to remove the sampling bias which results from use of varying selection probabilities; and

- **non-response weights** will be calculated to reduce the level of non-response bias.

Survey weights (the combination of design and non-response weights) will be applied to create datasets representative of the population of each jurisdiction on key variables.

B.2   Procedures for the Collection of Information

Data will be collected via CATI interview by the selected contractor, Ipsos, in a manner that is consistent with the data collections conducted in other countries, to ensure that data is

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[1] Response rates to be calculated using American Association for Public Opinion Research formula RR3.

compatible. Households and individuals identified during the RDD process (described above) will be contacted by telephone. The screener instrument script will differ according to whether a cell phone or landline is called (see **Attachment 2**). For cell phone contacts, the individual who answers the phone will be screened for eligibility; for landline calls, the screening will be conducted with whatever adult answers the telephone. If the household is identified as eligible (there is an adult 50 or older in the household), then the number of eligible adults will be determined. If there is more than one, the Next Birthday Method will be used to select the respondent for the interview. (**Attachment 3**).

Respondents will be given the option of completing the interview when the contractor reaches them by phone or, if the selected individual is not available at the time of the call, the interviewer will arrange to telephone at a convenient time. Interviewers will be fully briefed to act in a sensitive manner at all times. Interviewers will be instructed to show empathy towards the individuals being interviewed and be patient and sensitive, particularly if respondents get upset when discussing their experiences about cancer. Respondents will be offered contact details of NCI-based support, such as 1-800-FOR-CANCER, in the event that they experience any concern or distress.

Respondents will not be re-interviewed. The only case where respondents will be called a second time is when they asked to set up an appointment for their interview.

B.3   **Methods to Maximize Response Rates and Deal with Nonresponse**

To maximize response, an operational telephone number will be contacted a minimum of 7 times. Survey participants will be approached and interviewed by trained interviewers. When this survey was administered in other countries, using similar methods, interview rates among eligible participants were up to 83%. Mechanisms to increase response rates will include

interviewer training, establishment of researcher credentials, multiple call attempts, and targeted call times.

B.4 Test of Procedures or Methods to be Undertaken

The items on the questionnaire were cognitively tested in the United Kingdom with ten people (males and females) aged 50+ over the telephone for the information collection that occurred by other countries. The testing aimed to explore whether people understood the questions and terms used, how they were interpreted, and the thought processes followed when answering. Cognitive testing led to refinement of the questionnaire. In addition, a test-retest reliability check was conducted over the telephone, with each person completing the measure on two occasions, two weeks apart. Across all items, the average number of respondents providing exactly the same response at both administrations of the survey was 66%. A question at the end of the second survey helped explain discrepancies, finding that 84 out of 97 respondents had seen, heard or read something about cancer since the first interview.

Due to the extensive testing that has already been performed on the questionnaire, further testing was not needed. Adjustments were made as needed to ensure the language is appropriate to the United States.

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

The contracting organization is Westat, with Ipsos acting as the subcontractor for data collection. Representatives from both organizations were consulted for their expertise in survey design and administration. **Attachment 6** has a list of additional individuals that were critical in developing the survey instrument, sampling strategies, and research plan in this study. Many in

this international collaborative group may be consulted for the analysis phase, once the data are

collected, due to their experience with the measures and their interest in comparing data across

countries.