

SUPPORTING STATEMENT: PART B

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**Older Adult Safe Mobility Assessment Tool
Impact Evaluation and Developing a Dissemination Plan**

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CONTENTS

<u>Section</u>	<u>Page</u>
B. COLLECTIONS OF INFORMATION EMPLOYING STATISTICAL METHODS	
B.1. Respondent Universe and Sampling Methods	3
B.2. Procedures for the Collection of Information	4
B.3. Methods to Maximize Response Rates and Deal with Nonresponse ...	5
B.4. Tests of Procedures or Methods to be Undertaken.....	6
B.5. Individuals Consulted on Statistical Aspects and Individuals Collecting and/or Analyzing Data.....	7
REFERENCES.....	8

B. COLLECTIONS OF INFORMATION EMPLOYING STATISTICAL METHODS

B.1. Respondent Universe and Sampling Methods

The population of interest for the study is older adults age 60-74 with no known mobility limitations. The sampling frame will be an address-based list of telephone numbers of 10,000 households identified as likely having at least one resident within the target age range for the study (60-74). This nationally representative address list will be selected from the universe of all U.S. households, with approximately 70% of the sample being drawn from addresses in urban or suburban areas. Non-English speaking residents will be excluded because developing the tool and survey in multiple languages would be cost prohibitive, and providing the tool in English to those who are not fluent English speakers would not be appropriate.

Individuals meeting the screening criteria and agreeing to participate in the study will be randomly assigned to one of the two study groups (MPT Group or the Comparison Group).

Table 1 lists the sampling frame size and the expected number of respondents at each of the two interviews. We expect to contact a total of 10,000 households. Based on previous experience, we expect that approximately 3,000 households will never be reached, 3,000 of the individuals we contact will be ineligible, and 3,000 will not be interested in participating. This will yield a total of 1,000 individuals who meet the study criteria and agree to participate in the study, or about a 14% response rate. Our expected response rate is in line with current trends in telephone survey research (Kohut, Keeter, Doherty, Dimock & Christian, 2012). It is possible that we will reach our sample target prior to calling all 10,000 numbers, and our response rate will consequently be adjusted. Based on our experience conducting other community surveys, we anticipate that only about 10% will drop out of the study after enrollment and completion of the first survey, resulting in a total of 900 respondents completing a follow up interview, or a 90% response rate. We assume that the drop out rate will be similar in both the MPT and the Comparison Groups.

Table 1. Estimated Size to Respondent Universe and Proposed Study Sample

Population	Number in Universe	Target Sample Size : Baseline Interview	Target Sample Size : Follow Up Interview
U.S. adults age 60-74 with no known mobility limitations	10,000	1,000 (500 per respondent group*)	900 (450 per respondent group*)

**MPT Group or Comparison Group*

B.2. Procedures for the Collection of Information

Screening and survey data for this study will be collected using a computer assisted telephone interview (CATI) system. All survey data will be keyed by telephone interviewers into a study-specific data entry application. A separate survey tracking database will be used to record all contact attempts with respondents.

Data collection will be conducted in three phases :

Screening Phase: The first phase of data collection is to identify individuals who meet the study eligibility criteria and are willing to participate. Using a CATI system that includes the screening script, trained telephone interviewers will attempt to contact 10,000 different households and will query people who answer the phone about their eligibility and potential willingness to participate in the study. The screening guide includes questions pertaining to respondent age, their current mobility, and whether they currently live in an assisted living situation. Individuals meeting each of the eligibility criteria will be invited to participate in the study and their response to the invitation recorded. Each individual who agrees to participate in the study will then be randomly assigned to either the MPT or Comparison Group by a program embedded within the CATI software.

Baseline Interview. Individuals who enroll in the study will have the option of completing the baseline interview immediately after completing the screening or will complete the interview at a later time – to be scheduled by the telephone interviewer. The interviewer will ask each respondent each of the questions contained in the baseline interview guide, including questions about individuals' readiness to make mobility-related changes, mobility-related behaviors, willingness to develop a mobility plan, and background.

Follow Up Interview. Approximately two weeks after completing the baseline interview (and one week after MPT respondents receive a copy of the MPT by express mail), each study participant will be contacted again by a telephone interviewer. The interviewer will ask each of the questions contained in the follow-up interview guide. The questions in this interview guide are largely identical to the questions in the baseline interview guide, with the exception that the former includes items about possible MPT dissemination strategies for those in the MPT group, and does not include items about respondent background.

Battelle will use their professional Telephone Service Centers (TSC) staffed with data collection supervisors and telephone interviewers in St. Louis, MO. Data Collection Supervisors are available at all times to monitor interviewers for quality, answer questions, and field incoming calls from respondents. All telephone interviewers have received initial training and on-going coaching on interviewing techniques, and annual training in the protection of human subjects. They will also receive protocol specific training for this project just before the project begins. Our TSC is open weekdays, evenings, and weekends, including many holidays that we have found to be effective days to reach respondents (i.e. Labor Day, Memorial Day, etc.).

Sample Size Estimates. The proposed sample size of 500 in each of the two study groups (MPT and Comparison) was selected to provide the analytic team with the flexibility to determine (1) whether there are mean differences across the two study groups at the Follow-Up interview in terms of each of the Readiness to Change variables, Behaviors, and Plan Development and (2)

whether there are differences on each of these variables by Interview Time (Baseline vs. Follow-Up) in the MPT Group. This sample size will provide the statistical power necessary to detect a relatively small difference between the MPT and Comparison groups, anticipating that there will be wide variation within each group, as is common in intervention studies similar to that proposed. Taking into consideration a potential 10% dropout rate between the Baseline and Follow-Up Interviews, 500 respondents per group at Baseline and 450 respondents per group at Follow-Up will provide 80% power to detect an approximately 0.84-point mean difference in the Readiness to Change variables, Behaviors, and Plan Development, assuming a common group standard deviation (SD) of 4.5, $\alpha = .05$ (Table 2). This estimate is based on a simple random sampling design. Previous studies with similar measures and target populations have estimated group standard deviations of closer to 4 points, in which case with stratified cell sizes of approximately 20 participants in the MPT and Comparison Group this would marginally confer 80% power to detect differences of around 4 points within the subgroups, while controlling for Type I error at a rate of 0.05.

Table 2. Per Group Sample Sizes Needed to Detect Expected Group Differences on Key Dependent Variables at Differing Levels of Power, with $\alpha = .05$

Alpha	Power	Total Number of Respondents	Number of Respondents per Group	Expected Mean Difference Between Groups	SD
0.05	0.549	500	250	0.84	4.5
0.05	0.626	600	300	0.84	4.5
0.05	0.693	700	350	0.84	4.5
0.05	0.750	800	400	0.84	4.5
0.05	0.798	900	450	0.84	4.5
0.05	0.838	1000	500	0.84	4.5

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

Data Collection Options

In the past, collecting data by telephone has been shown to be the best approach among a variety of groups. This is particularly true for older adults, who are more likely to have established land-based telephone lines, and are less likely to use modes such as the internet regularly. Other alternatives, including mailings and in-person interviewing, have their own advantages and disadvantages, strengths and weaknesses. For example, personal face-to-face interviewing has generally resulted in the highest response rates (between 70-90%) but is also the most expensive type of data collection effort and takes the greatest amount of time to complete. The costs of using this method for this survey would be considered prohibitive. Short telephone surveys using

sampling methodology similar to that proposed in this application, have traditionally had response rates lower than face-to-face interviews (Kohut et al., 2012), but cost substantially less to conduct.

Mailed surveys are the least expensive form of data collection, but researchers have usually had to contend with much lower response rates; approximately 20-40 percentage points lower with one mailing and no follow-up compared to one mailing with additional contacts (Dillman, 2000).

Researchers have noted declines in the response rates for telephone surveys as more respondents cancel landline service in favor of cell phones (Kohut et al., 2012). However, according to the 2012 National Health Interview Survey, the percentage of Americans 65 and over with a landline was still almost 90% (Blumberg et al., 2012), while the 2013 American Association of Retired Persons Connecticut Telecommunications Survey showed that 92% of surveyed respondents 50 and older in Connecticut still maintained a landline (AARP, 2013). Because we will be contacting households identified as having at least one resident between the ages of 60-74 for the present study, we can expect a high percentage to have landlines, which will positively affect the response rates for this study.

Nonresponse bias analyses will be conducted. First, response rates will be calculated for each step of the procedure. Next, the response rate by geographic area will be compared to examine any geographic bias in those who refuse to answer any questions. Finally, the characteristics of those who participate in the baseline interview but not the follow-up will be compared with the characteristics of those who participate in both interviews to determine any potential bias.

Proposed Data Collection Procedures

The following procedures will be used to maximize cooperation and to achieve the desired high response rates:

- Data collectors will attempt to contact participants at varying times.
- We will make up to 6 initial attempts to contact each household on the address-based telephone list.
- We will make up to 6 attempts to contact study participants to complete the follow up interview.
- Telephone interviewers will use best practices in developing relationships of trust and cooperation with respondents, as these relationships will impact our ability to engage respondents and ensure their involvement throughout the study period.
- Focused training will be provided to data collectors on the issues surrounding decisions to participate for older adults and the purposes of the data collection effort. We will thoroughly address issues pertaining to data confidentiality.
- The interviewers will attempt to address any respondent concerns.
- A thank you gift will be provided to all respondents after the follow up interview.

B.4. Tests of Procedures or Methods to be Undertaken

Multiple phases of survey design, review, and revision were conducted to finalize the instruments. The specific items included on the screening survey are based on our need for

information about respondents' eligibility for study participation (Attachment D1). The questions on the baseline and follow up surveys are based on our need for information about individuals' readiness to make mobility-related changes, mobility-related behaviors, willingness to develop a mobility plan, and background. Analysis of survey responses will provide us with critical information about the extent to which the MPT is effective for changing individuals' attitudes and behaviors related to mobility.

The survey instruments were evaluated through a set of pretest cognitive interviews conducted with 9 older adults between the ages of 60-74 with no known mobility limitations. Respondents were queried about the clarity of the items and were given the opportunity to provide suggestions for how the survey instruments could be improved. Final revisions to the survey instruments were made based on the review and recommendations of the pre-test participants.

Generally, pretest respondents found the survey questions easy to answer, and no one had any issues with feeling uncomfortable answering any of the questions. Based on respondent feedback, we changed the wording of one of the response scales, added a question at the beginning of the TTM Stages of Change section asking about current physical activity participation, and shortened the introductory script. The most significant change was to the *Behaviors in the Past 2 Weeks* section of the survey. We found that many of the respondents made comments about the questions in this section suggesting that the process of responding to the questions could potentially prompt them to change their behaviors. Because we were concerned that asking these questions could contaminate the comparisons between respondents' behaviors at baseline vs. follow up, we removed this set of questions from the baseline survey. This set of questions was replaced in the baseline survey with questions asking respondents about the frequency with which they see a physician and eye doctor for regular check ups.

All data collection procedures to be used in this study have been previously tested by the contractor who assisted with design of the study protocol and survey instruments (Battelle). The surveys have been designed as brief telephone interviews to guarantee the highest possible response rates for older adults.

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

CDC collaborated with Battelle's Health and Analytics staff to design the study protocol and data collection instruments. Betsy Payn, MA (206-528-3138), Lisa Cubbins, PhD (206-528-3019), and Jennifer Brustrom, PhD (209-726-3458) designed the protocol, data collection instrument, and provided input on the analysis plan. Robert Woodruff, MS, designed the sampling plan, conducted the power analyses, and provided consultation on the analysis plan. Battelle will be responsible for conducting the data collection and analysis.

Gwen Bergen, PhD, MPH, MS (770.488.1394) and Bethany West, MPH (770.488.0602), National Center for Injury Prevention and Control (NCIPC), Division of Unintentional Injury Prevention, CDC are the technical contacts for this project, responsible for providing scientific guidance to the Battelle team. Dr. Bergen and Ms. West will approve and receive all contract deliverables. Geeta Bhat, MPH (770.488-7745) and Susan Dugan (770-488-1135), also affiliated with NCIPC, also participated in the the study protocol development process.

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