

Attachment C3c Analytic Plan and Illustrative Table Shells

Analytic Plan

Hypotheses

There are six hypotheses that will be tested using this survey. They are organized into three parts as follows:

Stage of Change

1. Was the treatment group in a more advanced stage of change at follow-up as compared with baseline?
2. Was the treatment group more likely to have an increase in stage of change compared with the control group?

Behaviors

1. Was the treatment group more likely to have an increase post-treatment in thinking about, planning or doing one of the mobility-planning behaviors compared with the control group?

Plan

1. Was the treatment group more likely to have a plan for self, a plan for their home, and a plan for travel at follow-up as compared with baseline?
2. Was the treatment group more likely to have an increase in having the three plans post-treatment compared with the control group?

Creation of Data Variables

Stage of Change

A stage of change will be determined for each of the three dimensions of mobility (individual, home, community) measured on the questionnaire for both the baseline and follow-up survey. The latest stage that the respondent strongly agreed or agreed with the appropriate statement will be selected as the respondent's stage. Table 1 shows the order of precedence for selecting the stage along with the question number for the questionnaire item used to measure that stage for each dimension.

Table 1. Determining Stage of Change based on Questionnaire*

	Questions for Measuring Stage by Dimension of Mobility		
Logic for assigning stage for each dimension	Individual Dimension	Home Dimension	Community Dimension
If response to question = <i>strongly agree</i> or <i>agree</i> then stage =Maintenance (value=5); else...	I have made the changes I need to make so I will have the physical ability to do the things I want to do as I get older.	I have been successful in making changes to eliminate trip and fall hazards in my home.	I know how to get around as I get older and will continue to look for opportunities or support as I need them.
If response to question = <i>strongly agree</i> or <i>agree</i> then stage =Action (value=4); else...	I am doing something about the things that might limit my ability to get around as I get older, such as being active or getting a vision checkup.	I have started making changes to my home so as to protect me from tripping or falling in my home as I get older.	I have made some changes to make sure I can get around as I get older, and I plan to continue.
If response to question = <i>strongly agree</i> or <i>agree</i> then stage =Preparation (value=3); else	I am preparing to start regular physical activity program in the next few weeks.	I am very motivated to conduct a safety check of my home to protect me from trips and falls as I get older.	I have been talking with my family and friends about how I will get around as I get older.
If response to question =	I have been thinking	I really think I should	I have been thinking

<i>strongly agree</i> or <i>agree</i> then stage =Contemplation (value=2); else	about whether I will be able to do the things I want to do as I get older.	get started with a plan to make my home safe from the risk of tripping and falls..	about my ability to get around as I get older .
If response to question = <i>strongly agree</i> or <i>agree</i> then stage =Pre- contemplation (value=1)	I don't need to do anything to maintain or improve my physical strength or balance as I get older.	I could make changes to make my home safer from trips and falls as I get older, but I don't currently have plans to.	I don't have the time or energy to think about how I will get where I need to go outside of my home as I get older.

The results of this will be the following six variables:

- Individual baseline stage of change
- Home baseline stage of change
- Community baseline stage of change
- Individual follow-up stage of change
- Home follow-up stage of change
- Community follow-up stage of change

- Two additional composite variables will be created:

Composite baseline stage of change = Individual baseline stage of change + Home baseline stage of change + Community baseline stage of change

Composite follow-up stage of change=Individual post-intervention stage of change + Home post-intervention stage of change + Community post-intervention stage of change

For each of the three dimensions and the composite, the difference in stages of change from baseline to post-intervention will be calculated:

Individual Stage = Individual follow-up stage of change – Individual baseline stage of change

Home Stage = Home follow-up stage of change-Home baseline stage of change

Community Stage =Community follow-up stage of change-Community baseline stage of change

Composite Stage =Composite follow-up stage of change-Composite baseline stage of change

These four variables (Individual, Home, Community, Composite) will be used for the remaining analysis.

Behaviors in the Past 2 Weeks. A composite *Behavior* score will be calculated for each respondent for the Follow-up interview (Follow-up) based on their responses to the nine items indicative of mobility activities they performed in the past 2 weeks. Scores will range from 9-28, where lower scores are indicative of a low level of effort to changes and higher scores are indicative of a high level of effort.

Plan Development. Three (Individual, Home, Community) *Plan Development* scores will be calculated for each participant for each interview (Baseline and Follow-up) based on their responses to the 3 items in the section labeled *Developing Plan*. Scores will range from 1-5, where 1 is indicative of a low level of plan development and 5 is indicative of a high level of development. Three Change scores (Individual Plan Change, Home Plan Change, Community Plan Change) will be calculated by subtracting the respective baseline score from the respective follow-up score.

Analysis

Univariate Analyses

We will begin the analysis process by calculating frequency distributions for each of the variables in both the Baseline and Follow-Up Interview Guides. Descriptive statistics (means and standard deviations [SDs]) will be obtained for each of the continuous variables. As appropriate, statistics will be reported separately for each group (MPT vs. Comparison Group) at each time point (Baseline vs. Follow-Up; see sample table shells, below).

Bivariate Analyses

Mean differences between the two respondent groups (MPT and Comparison) on continuous variables such as age will be explored using a series of t-tests. Differences by respondent group and interview time will be explored using a series of chi square tests. Group differences in variables with ordinal scaling (e.g., frequency of driving a car within the last month; level of agreement on Transtheoretical Model [TTM] Behaviors and Planning items) will be explored using a series of Mann-Whitney U tests.

Multivariate Analyses

Repeated measures analyses of variance (ANOVAs) will be used to explore whether there are mean differences in the composite and individual scores for Behaviors, and Plan Development by Respondent Group (MPT vs. Comparison) and Interview Time (Baseline vs. Follow Up).

A series of logistic regressions will be used to examine whether respondent characteristics such as gender, race/ethnicity, rural/urban, level of social support, MPT respondent (where relevant) at Baseline predict the following outcomes:

1. A positive change in the Composite Stage
2. Whether an MPT respondent reports developing a *Mobility Plan for self*
3. Whether an MPT respondent reports developing a *Mobility Plan for Inside My Home*
4. Whether an MPT respondent reports developing a *Mobility Plan for Outside My Home at Follow Up*.

Potential Statistical Concerns

This study will be sufficiently powered to detect between and within-group differences of the magnitude expected. Thus, there are no concerns about statistical power.

Many of the planned inferences that result from the statistical analyses described in Part A rely on distributional assumptions of normality. While these procedures are moderately robust to departures from normality, some outcomes of interest are ordinal in nature as opposed to continuous, so we will assess this assumption via probability plots and the Shapiro-Wilk test. Non-parametric equivalents will be used if these assumptions are grossly violated, such as the Wilcoxon signed-rank test for within-group comparisons at the two time-points and the Kruskal-Wallis ANOVA for between-group comparison of medians.

Qualitative Analysis

The section of the Follow Up survey labelled *Dissemination and Feedback on Use of the MPT* contains several open ended questions (items 5,6,8,9,11 and 12). The responses from these questions will be grouped and presented by overall themes. These questions will apply to the MPT group only.

Illustrative Table Shells

Table 2. Respondent Characteristics (continuous variables)

Characteristic	Respondent Group						p*
	All		MPT		Comparison		
	Mean (SD)	Min-Max	Mean (SD)	Min-Max	Mean (SD)	Min-Max	
Age							
Length of time in current residence							
Number of adults age 18+ living in home with respondent							

**Group differences will be assessed either with T-test(s) or Mann-Whitney U test(s).*

Table 3. Respondent Characteristics (nominal variables)

Characteristic	Respondent Group						P*
	All		MPT		Comparison		
	Number	Percent	Number	Percent	Number	Percent	
Gender Male Female							
Ethnicity: Of Hispanic or Latino Origin Yes No							
Race White Black or African-American Asian Native Hawaiian or Other Pacific Islander American Indian or Alaska Native							
Education (highest grade completed) Less than High School or GED High school degree or GED Some college 2 year college degree Bachelor's degree Graduate or professional degree							

Characteristic	Respondent Group						P*
	All		MPT		Comparison		
	Number	Percent	Number	Percent	Number	Percent	
Employment status Work full time (≥ 35 hours/week) Work part time (< 35 hours/week) Retired Going to school Keeping house Other							
Urban/Rural Urban Rural							
Social support** <i>(assessed by degree of agreement with the statement "I can count on friends and family when I need to talk")</i> Strongly agree Agree Neither agree nor disagree Disagree Strongly disagree							

*Chi square will be used to explore all associations except for social support.

**Mann-Whitney U test

Table 4. Transportation Habits

Item	Respondent Group						P*
	All		MPT		Comparison		
	Number	Percent	Number	Percent	Number	Percent	
Drive a car (frequency in a typical month) Every day More than 1 time per week Once per week 2-3 times per month Once per month Less than once per month Never Not applicable (do not have a car to drive)							
Use public transportation (frequency in typical month) Every day More than 1 time per week Once per week 2-3 times per month Once per month Less than once per month Never Not applicable (no public transportation in my area)							

Item	Respondent Group						P*
	All		MPT		Comparison		
	Number	Percent	Number	Percent	Number	Percent	
Walk to get to a destination (frequency in typical month) Every day More than 1 time per week Once per week 2-3 times per month Once per month Less than once per month Never							
Bike to get to a destination (frequency in typical month) Every day More than 1 time per week Once per week 2-3 times per month Once per month Less than once per month Never							

**Mann-Whitney U tests*

Table 5. Dissemination and Feedback on Use of Brochure (MPT Group Only)

Item	MPT Respondents		p*
	Number	Percent	
Likelihood of downloading the brochure from the Web or Internet 1 (Not at all likely) 2 3 4 5 (Very likely)			
Likelihood of using the brochure if given to respondent by medical provider 1 (Not at all likely) 2 3 4 5 (Very likely)			
Likelihood of reading the rest of the brochure based on seeing just the first page 1 (Not at all likely) 2 3 4 5 (Very likely)			
Used <i>Mobility Plan for Myself</i> to develop a mobility plan Yes No			

Item	MPT Respondents		p*
	Number	Percent	
Used Mobility Plan for Inside My Home to develop a mobility plan Yes No			
Used Mobility Plan for Outside My Home to develop a mobility plan Yes No			

**Mann Whitney U or chi-square tests*

Table 6. TTM Behaviors, by Time of Interview and Respondent Group

TTM Behaviors	Respondent Group and Time of Interview											
	Pre-Test						Follow-Up					
	All Respondents		MPT		Comparison		All Respondents		MPT		Comparison	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<p>I am preparing to start a regular exercise program in the next few weeks</p> <p>Disagree or strongly disagree</p> <p>Neither agree nor disagree</p> <p>Agree or strongly disagree</p>												
<p>I have started making changes to my home so as to protect me from tripping or falling in my home as I get older</p> <p>Disagree or strongly disagree</p> <p>Neither agree nor disagree</p> <p>Agree or strongly agree</p>												

TTM Behaviors	Respondent Group and Time of Interview											
	Pre-Test						Follow-Up					
	All Respondents		MPT		Comparison		All Respondents		MPT		Comparison	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
I have been thinking about my ability to get around as I get older Disagree or strongly disagree Neither agree nor disagree Agree or strongly agree												
I don't need to do anything to maintain or improve my physical strength or balance as I get older Disagree or strongly disagree Neither agree nor disagree Agree or strongly agree												

TTM Behaviors	Respondent Group and Time of Interview											
	Pre-Test						Follow-Up					
	All Respondents		MPT		Comparison		All Respondents		MPT		Comparison	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<p>I am very motivated to conduct a safety check of my home to protect me from trips and falls as I get older</p> <p>Disagree or strongly disagree</p> <p>Neither agree nor disagree</p> <p>Agree or strongly agree</p>												
<p>I really think I should get started with a plan to make my home safe from the risk of tripping and falls</p> <p>Disagree or strongly disagree</p> <p>Neither agree nor disagree</p> <p>Agree or strongly agree</p>												

TTM Behaviors	Respondent Group and Time of Interview											
	Pre-Test						Follow-Up					
	All Respondents		MPT		Comparison		All Respondents		MPT		Comparison	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
I have been successful in making changes to eliminate trip and fall hazards in my home Disagree or strongly disagree Neither agree nor disagree Agree or strongly agree												
I could make changes to make my home safer from trips and falls as I get older, but I don't currently have plans to Disagree or strongly disagree Neither agree nor disagree Agree or strongly agree												

TTM Behaviors	Respondent Group and Time of Interview											
	Pre-Test						Follow-Up					
	All Respondents		MPT		Comparison		All Respondents		MPT		Comparison	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
I have been talking with my family and friends about how I will get around as I get older Disagree or strongly disagree Neither agree nor disagree Agree or strongly agree												
I have made some changes to make sure I can get around as I get older, and I plan to continue Disagree or strongly disagree Neither agree nor disagree Agree or strongly agree												

TTM Behaviors	Respondent Group and Time of Interview											
	Pre-Test						Follow-Up					
	All Respondents		MPT		Comparison		All Respondents		MPT		Comparison	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<p>I don't have the time or energy to think about how I will get where I need to go outside of my home as I get older</p> <p>Disagree or strongly disagree</p> <p>Neither agree nor disagree</p> <p>Agree or strongly agree</p>												
<p>I am doing something about the things that might limit my ability to get around as I get older, such as exercising or getting a vision checkup</p> <p>Disagree or strongly disagree</p> <p>Neither agree nor disagree</p> <p>Agree or strongly agree</p>												

TTM Behaviors	Respondent Group and Time of Interview											
	Pre-Test						Follow-Up					
	All Respondents		MPT		Comparison		All Respondents		MPT		Comparison	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
I have made the changes I need to make so I will have the physical ability to do the things I want to do as I get older Disagree or strongly disagree Neither agree nor disagree Agree or strongly agree												
I have been thinking about whether I will be able to do the things I want to do as I get older Disagree or strongly disagree Neither agree nor disagree Agree or strongly agree												

TTM Behaviors	Respondent Group and Time of Interview											
	Pre-Test						Follow-Up					
	All Respondents		MPT		Comparison		All Respondents		MPT		Comparison	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
I know how to get around as I get older and will continue to look for opportunities or support as I need them Disagree or strongly disagree Neither agree nor disagree Agree or strongly agree												

Table 7. Stage of Change: Individual

Stage of Change	Respondent Group and Time of Interview											
	Pre-Test						Follow-Up					
	All Respondents		MPT		Comparison		All Respondents		MPT		Comparison	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Pre-contemplation												
Contemplation												
Preparation												
Action												
Maintenance												

Table 8. Stage of Change: Home

Stage of Change	Respondent Group and Time of Interview											
	Pre-Test						Follow-Up					
	All Respondents		MPT		Comparison		All Respondents		MPT		Comparison	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Pre-contemplation												
Contemplation												
Preparation												
Action												
Maintenance												

Table 9. Stage of Change: Community

Stage of Change	Respondent Group and Time of Interview											
	Pre-Test						Follow-Up					
	All Respondents		MPT		Comparison		All Respondents		MPT		Comparison	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Pre-contemplation												
Contemplation												
Preparation												
Action												
Maintenance												

Table 10. Stage of Change: Composite

Stage of Change	Respondent Group and Time of Interview											
	Pre-Test						Follow-Up					
	All Respondents		MPT		Comparison		All Respondents		MPT		Comparison	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Pre-contemplation												
Contemplation												
Preparation												
Action												
Maintenance												

Table 11. Type of Change in Stage of Readiness, By Mobility Dimension and Respondent Group

Dimension of Mobility	Respondent Group and Type of Change																			
	All Respondents						MPT						Comparison							
	Positive change		No change		Negative change		Positive change		No change		Negative change		Positive change		No change		Negative change			
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Individual																				
Home																				
Community																				
Composite																				

Table 12. Behaviors in the Past Two Weeks, by Interview Time and Respondent Group

Behavior in the Past Two Weeks	Follow-Up					
	All Respondents		MPT		Comparison	
	Number	Percent	Number	Percent	Number	Percent
Scheduled a physical check up Did not think about doing Thought about doing Made plans to do Did the activity						
Scheduled a vision check up Did not think about doing Thought about doing Made plans to do Did the activity						
Participated in a physical activity program to increase your physical strength Did not think about doing Thought about doing Made plans to do Did the activity						

Behavior in the Past Two Weeks	Follow-Up					
	All Respondents		MPT		Comparison	
	Number	Percent	Number	Percent	Number	Percent
<p>Participated in a physical activity program to increase your balance</p> <p>Did not think about doing</p> <p>Thought about doing</p> <p>Made plans to do</p> <p>Did the activity</p>						
<p>Checked your home for tripping hazards</p> <p>Did not think about doing</p> <p>Thought about doing</p> <p>Made plans to do</p> <p>Did the activity</p>						
<p>Made any changes for safety in your home (e.g., putting handrails on the stairs)</p> <p>Did not think about doing</p> <p>Thought about doing</p> <p>Made plans to do</p> <p>Did the activity</p>						

Behavior in the Past Two Weeks	Follow-Up					
	All Respondents		MPT		Comparison	
	Number	Percent	Number	Percent	Number	Percent
Took a driving refresher course Did not think about doing Thought about doing Made plans to do Did the activity						
Got your car checked to see how well it fits you Did not think about doing Thought about doing Made plans to do Did the activity						
Gathered information on transportation options other than driving yourself Did not think about doing Thought about doing Made plans to do Did the activity						

Table 13. Plan Development

Planning Behaviors	Respondent Group and Time of Interview											
	Pre-Test						Follow-Up					
	All Respondents		MPT		Comparison		All Respondents		MPT		Comparison	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<p>I have a plan for how I will maintain or increase my ability to do the things I want to do as I get older</p> <p>Disagree or strongly disagree</p> <p>Neither agree nor disagree</p> <p>Agree or strongly agree</p>												
<p>I have a plan for how I will make my home safe so I can avoid tripping and falling in my home</p> <p>Disagree or strongly disagree</p> <p>Neither agree nor disagree</p> <p>Agree or strongly agree</p>												

Planning Behaviors	Respondent Group and Time of Interview											
	Pre-Test						Follow-Up					
	All Respondents		MPT		Comparison		All Respondents		MPT		Comparison	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
I have a plan for how I will get to where I want to go when I can no longer use my usual ways of getting around Disagree or strongly disagree Neither agree nor disagree Agree or strongly agree												

**Table 14. Readiness to Change and Composite Scores for Behaviors and Plan Development,
by Interview Time and Respondent Group**

Characteristic	Pre-Test						Follow-Up					
	All Respondents		MPT		Comparison		All Respondents		MPT		Comparison	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Behaviors (composite score)												
Plan development (composite score)												
Individual Plan development												
Home Plan Development												
Community Plan Development												

Table 15. Plan Development Change, By Respondent Group

Characteristic	Respondent Group						P
	All		MPT		Comparison		
	Mean	SD	Mean	SD	Mean	SD	
Behavior Change							
Individual Plan Change							
Home Plan Change							
Community Plan Change							