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PILOT RESEARCH STUDY

RESULTS FROM A PILOT RANDOMIZED CONTROL TRIAL OF HOME-DELIVERED MEAL PROGRAMS

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FUNDED BY



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MORE THAN A MEAL

RESULTS FROM A PILOT RANDOMIZED CONTROL TRIAL OF HOME-DELIVERED MEAL PROGRAMS

INTRODUCTION

The senior nutrition program, the largest of the Older Americans Act (OAA) services, is designed to address problems of food insecurity, encourage socialization, and promote the health and well-being of older persons through nutrition and nutrition-related services.¹ More than 40 percent of federal appropriations under the OAA go toward congregate and home-delivered meals. In 2012, the home-delivered meals program served over 135 million meals to more than 841,000 participants. Strong evidence suggests that the home-delivered meals program has a positive impact on the nutritional well-being of older, homebound persons.²⁻⁴ Research has also demonstrated that individuals receiving meals exhibit improvements in dietary patterns and decreases in food insecurity.⁴ Furthermore, home-delivered meals help to relieve caregiver burden, a major risk factor for morbidity and mortality,⁵ by providing an essential service to the older adults for whom they provide care.

The nation's home-delivered meals programs have been successful in reaching many older adults throughout the United States and have become a significant part of national service strategies intended to support older adults in their own homes. Programs are generally popular with consumers and seen as beneficial in helping them to meet their basic food needs and remain in their homes.⁶ Previous research has demonstrated a relationship between state spending on home-delivered meals and the ability of states to keep older adults with low-care needs out of nursing homes.⁷ Research has also suggested that states that have increased their capacity in providing home-delivered meals also have recognized increased Medicaid savings by decreasing the proportion of low-care nursing home residents dually-eligible for Medicaid and Medicare.⁸ Beyond providing savings to states, home-delivered meals are believed to improve the quality of life of older adults: the meals may help increase older adults' independence, encourage autonomy, and thereby improve recipients' quality of life.

Federal, state and local funding cuts, increased transportation and food costs, and the lingering effects of the economic downturn have had significant impacts on OAA Meals on Wheels programs, the largest and most well-known of the home-delivered meals programs (*see Appendix A*). Over the past several years, these compounding factors have resulted in hundreds of thousands of fewer seniors served, millions of fewer meals delivered, and a dramatic increase in waiting lists.⁹ However, there remains little to no evidence of the demographic and socioeconomic makeup of the populations affected by these issues, particularly those individuals who self-identify as needing home-delivered meals but are placed on growing waiting lists due to insufficient resources.

Faced with unprecedented challenges to meet the increasing demand and need for home-delivered meals, decision-makers at all levels of the Aging Network are seeking lower cost solutions to serve homebound seniors. Once-weekly delivery of frozen meals has emerged as a potential solution. In this model, participants are provided the full week's meals in one bulk delivery per week. However, proponents of the traditional, daily-delivery model believe that over the long term, these lower cost solutions – drop-shipped meals, less frequent meal deliveries with multiple meals, and no or at best, limited personal contact – will have negative impact on the health, independence, and well-being of homebound seniors receiving services. As programs are changing their service-delivery model in an effort to reduce costs and meet the increased demand for meals, it is important that we assess the effectiveness of the added benefit of daily contact and the daily meal that is provided by the traditional Meals on Wheels program for a variety of outcomes.

STUDY OBJECTIVE

This pilot study had two main objectives. First, we proposed to characterize the population of older adults on waiting lists for home-delivered meals and compare their health and health-related needs to the population of older adults living in the community. Secondly, we sought to determine the feasibility of conducting a randomized controlled trial to evaluate the different home-delivered meals modalities. The methodology and results of this study are presented below:

METHODOLOGY

This pilot study was designed as a three-arm, parallel, fixed, single-blinded randomized controlled trial. The study was conducted in the winter of 2013 and spring of 2014. We targeted enrollment of 620 participants at eight sites across the country.

PARTICIPANTS

Participants in the More Than a Meal (MTAM) sample were selected from waiting lists at eight sites across the United States. The sites were selected based on survey responses to a Meals On Wheels America survey assessing the effects of the federal budget sequester on their programs and conducted in September-October of 2013. The eight sites chosen all had average waitlist times of six or more months. This criterion was used to avoid unethically withholding meals and ensured that the control group would likely continue to remain on the waiting list during the study period. Three sites were located in Texas and the rest were in Florida, Georgia, North Carolina, New Jersey, and Rhode Island.

In order to make comparisons of the sample of individuals on waiting lists for home-delivered meals to a representative national population of older adults, we utilized publicly available data from the National Health and Aging Trends Study (NHATS).¹⁰ The NHATS is sponsored by the National Institute on Aging (grant number NIA U01AG032947) through a cooperative agreement with the Johns Hopkins Bloomberg School of Public Health. NHATS gathers information from a nationally representative sample of over 8000 Medicare beneficiaries ages 65 and older. In-person qualitative interviews are used to collect detailed information on activities of daily living (ADLs), living arrangements, economic status and well-being, aspects of early life, and quality of life. We used data from round one of the study, which took place in 2011,¹¹ to provide a comparison to our MTAM sample of homebound older adults on waiting lists for home-delivered meals. NHATS oversampled blacks and people in older age groups, and the response rate was 72%. We excluded individuals living in residential care facilities, leaving a final NHATS sample of 7,197 survey respondents in the comparison group. Analytic weights that take into account differential probabilities of selection and non-response were used to allow for generalization to the aged Medicare population.

PROTOCOL

MTAM participants were surveyed by local Meals on Wheels staff, and in one site, by Meals on Wheels trained volunteers. The baseline survey consisted of 60 items and was conducted in person, in the participants' homes. (The baseline survey is available in *Appendix B.*) Interviewers also completed an Interviewer Observation Questionnaire modeled after the National Health and Aging Trends Survey,¹¹ which detailed the status of the interview and the respondent's demeanor as well as observations inside and outside the home (*see Appendix C.*) Thereafter, each site arranged participants in alphabetical order and randomly assigned each person to a group: a) daily, traditional meal delivery, b) frozen, once-weekly meal delivery, and c) a control group who were to remain on the waiting list until service became available. Participants in the frozen meal group received once-weekly deliveries of five days of frozen meals and participants in the daily delivery group received daily delivery of hot/chilled meals during weekdays. The meals met nutrition standards by adhering to current Dietary Guidelines for Americans (DGAs) and providing at least one-third of the Dietary Reference Intake (DRI) as required by the

Older Americans Act Section 339. Fifteen weeks after receiving the first meal — or for the control group 15 weeks after the initial survey participants — all participants were called and a follow-up telephone interview was scheduled. The Follow-Up Telephone Interview Guide consisted of 39 questions that all participants were asked and an additional 24 questions for the two groups who received meals (see Appendix D). Figure 1 diagrams the selection, enrollment, and randomization of study participants.

Figure 1. Participant Flow Chart



OUTCOMES OF INTEREST

Outcomes of interest were determined by Brown University investigators in consultation with Meals On Wheels Association of America Senior Leadership and AARP Foundation.

We identified primary and secondary outcomes based on the two questions we most wanted to address:

- 1) What is the effectiveness of home-delivered meals (regardless of delivery method)?
- 2) What is the effectiveness of the meal delivery method (traditional daily-delivered meals versus frozen weekly-delivered meals)?

Figure 2. Primary and Secondary Outcomes for the Two Study Questions

<p>PRIMARY OUTCOMES</p> <p>EVALUATE THE EFFECTIVENESS OF HOME-DELIVERED MEALS</p> <ul style="list-style-type: none"> • IMPROVED MENTAL HEALTH • DECREASED ISOLATION • IMPROVED SELF-REPORTED HEALTH <p>EVALUATE THE EFFECTIVENESS OF MEAL DELIVERY METHOD</p> <ul style="list-style-type: none"> • DECREASED ISOLATION • INCREASED FEELINGS OF SAFETY • INCREASED ABILITY TO REMAIN IN HOME 	<p>SECONDARY OUTCOMES</p> <p>EVALUATE THE EFFECTIVENESS OF HOME-DELIVERED MEALS</p> <ul style="list-style-type: none"> • REDUCED HEALTHCARE VISITS • REDUCED RATES OF FALLS <p>EVALUATE THE EFFECTIVENESS OF MEAL DELIVERY METHOD</p> <ul style="list-style-type: none"> • INCREASED CLIENT SATISFACTION
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SURVEY TOOLS

In order to collect relevant data, the following survey tools were developed:

- **INITIAL SURVEY GUIDE.** This tool utilized primary data collected by the assessors during in-home interviews for participants in the study. Inclusion criteria for the data collection were individuals on waiting lists for home-delivered meals. The goals of this data collection were to establish baseline data about health, socialization, mental health, and quality of life. In addition, it was designed to provide information about the needs and characteristics of individuals on waiting lists for home-delivered meals. Because we wanted to be able to make comparisons of this group to the national population of older adults, we included questions that are utilized in the National Health and Aging Trends Study. We also included questions from AARP Foundation's Isolation Impact Assessment Tool. The data collection includes demographic information about each participant; social support, community connectedness, health and healthcare utilization, falls, helpers, isolation, and quality of life.
- **INTERVIEWER OBSERVATION QUESTIONNAIRE.** Following completion of the in-person initial interview, interviewers were instructed to complete the Interviewer Observation Questionnaire and provide commentary about each participant. The questions included their impression of the interviewee's participation in the survey and their observations inside the home as well as observations from outside the home. These questions came from the National Health and Aging Trends Study.
- **FOLLOW-UP SURVEY GUIDE.** The follow-up telephone survey queried all participants about their social support, health and healthcare utilization, falls, mental health, feelings of isolation, and quality of life. A second set of questions were asked of participants who received meals regarding their experience with the home-delivered meals program and self-reported improvements in their health and well-being attributable to receiving home-delivered meals. We included questions from the National Survey of Older Americans Act Participants,¹² the Administration on Aging's Performance Outcome Measurement Project (POMP) Toolkit,¹³ and from the MAAA Title III Home-Delivered Meals Participant Survey.¹⁴

The survey guide was cognitively tested in a series of test interviews with clients at the local Meals On Wheels affiliate in Rhode Island. Feedback from these sessions was utilized to make final changes to the data collection tools.

OUTCOME VARIABLE DEFINITIONS

MENTAL HEALTH. We examined changes in mental health, specifically depression and anxiety. Depression was measured using the Patient Health Questionnaire 2-item (PHQ-2) depression screener that has been validated and used in other studies.¹⁵ To evaluate anxiety, we used the Generalized Anxiety Disorder 2-item measure (GAD-2), developed as a screening test to detect anxiety disorders.¹⁶

LONELINESS AND ISOLATION. To get at the construct of isolation, we used the UCLA Loneliness Scale¹⁷ in AARP Foundation's Isolation Impact Assessment Tool to create a loneliness score for individuals at baseline and follow-up. The three questions that made up the scale included "How often do you lack companionship? How often do you feel left out? How often do you feel isolated from others?" In addition, we examined the direct measure of isolation: "How often do you feel isolated from others?" Response options Never, Rarely, Sometimes, and Often were assigned values 1-4, and change scores were calculated to identify individuals that improved.

SELF-REPORTED HEALTH. To evaluate self-reported health, we used the standard measure "How would you rate your health: Excellent, Very Good, Good, Fair, or Poor?" We examined the rates of improvement between baseline and follow-up for all three groups.

FEELINGS OF SAFETY. To assess feelings of safety, in the follow-up survey we directly asked of those who received meals, “Does having home-delivered meals help you to feel safe in your home?” We report on their responses to this question and the open-ended probe.

ABILITY TO REMAIN IN HOME. To determine whether or not home-delivered meals contributed to individuals’ abilities to remain in their homes, we asked “How often do you worry about being able to remain in your home?” Response options Never, Rarely, Sometimes, and Often were assigned values 1-4, and change scores were calculated to identify individuals that worried less often/improved between baseline and follow-up.

HEALTHCARE VISITS. To assess whether or not receipt of home-delivered meals impacts incidence of healthcare visits, we examined rates of self-reported hospitalization. We assessed the proportion of individuals who reported a hospitalization during the study period.

FALLS. Falls were examined using the definition “By falling down, we mean any fall, slip, or trip in which you lose your balance and land on the floor or ground or at a lower level.” We asked whether or not the individual had fallen in the last month and if so, how many times.

SATISFACTION. Satisfaction with the meals was assessed through the question “Would you recommend the [NAME OF HOME-DELIVERED MEALS PROGRAM] to others?” and the follow-up probe “why would you recommend this program to others?”

ANALYSES

Each site entered the data into a data-entry tool designed for this study. Both the original hard copies of the survey tools and the data entry tool were sent to Meals On Wheels Association of America. Brown University study staff audited at least 10% of the data from each site in order to ensure data integrity and determine if there were any systematic errors.

QUANTITATIVE ANALYSES. Descriptive data were determined for the baseline characteristics, and differences between the control and intervention groups were tested using a chi-square test for categorical variables. We employed a chi-square test to determine the effect of the interventions on improvement in outcomes of interest.

QUALITATIVE ANALYSES. In a modification of grounded theory analysis,¹⁸ we devised a provisional coding structure based on our provisional review of participants’ responses to open-ended questions to analyze the information.¹⁹ First, two team members developed a preliminary code structure by which labels were applied to salient text. Revisions to the coding scheme and decisions about codes were made by team consensus, and previously coded responses were recoded for consistency. An audit trail of team decisions was kept throughout for the team to review coding and theme decisions. These codes were then quantified in order to present the distribution of themes between the two groups receiving meals.

RESULTS

DEMOGRAPHIC CHARACTERISTICS

Overall, 626 individuals completed the baseline questionnaire and were randomized to receive either daily-delivered meals (n=214), frozen meals delivered once-weekly (n=202), or to remain on the waiting list (n=210). Demographic characteristics of the MTAM sample are presented in *Table 1*. The baseline characteristics of the intervention groups and the control group did not differ significantly by site and are therefore presented in the aggregate.

Table 1. Demographic Characteristics of the Sample

	N	%
MARITAL STATUS		
Married	140	23%
Widowed	274	45%
EDUCATION		
Less than high school	170	28%
High school diploma or GED	237	40%
Some college	119	20%
College degree or higher	74	12%
RACE		
White	359	60%
Black	207	34%
ETHNICITY		
Hispanic or Latino	72	12%
INSURANCE		
Medicaid	176	31%
Medigap/Medicare Supplement	306	54%
Medicare Part D	441	78%
AGE		
Mean = 76.3	Range = (60-102)	

SOCIAL SUPPORT, HELP WITH PERSONAL CARE NEEDS, AND NUTRITIONAL RISK

Over half of participants (55%) lived alone. When asked about social support, only 58% of participants report that they have daily or almost daily contact with friends or family. An additional 24% report having contact with friends or family once or twice a week, 10% have contact once or twice a month, and 8% report having contact less than once a month.

Additionally, 58% of participants report needing the help of another person with personal care needs because of a physical, mental, or emotional condition. When asked about the future, only 63% of participants said that they have friends or relatives who would be willing and able to help them over a long period of time if they needed help with basic personal care activities.

The majority of participants (85%) report currently having a chronic illness. Of those with a chronic illness, 72% indicate that their chronic illness impacts their ability to leave their home. We also queried participants about factors that have shown to be related to nutritional risk by adapting questions from the Revised Nutrition Screening Initiative Checklist.²⁰ Individuals on waiting lists for home-delivered meals exhibited symptoms of nutritional risks: 51% of participants reported gaining or losing 10 pounds in the past 6 months without wanting to, 45% reported not having enough money to buy the food they needed, 47% reported eating alone for every meal, and 88% reported that they take three or more medications per day.

ABILITY TO COMPLETE INTERVIEW

Following the in-person interview, interviewers recorded their impression of the respondent’s ability to participate in the interview. Results suggest that our MTAM sample were able to participate in the interview and difficulties that were noted were not perceived to limit their ability to collect information (see Table 2).

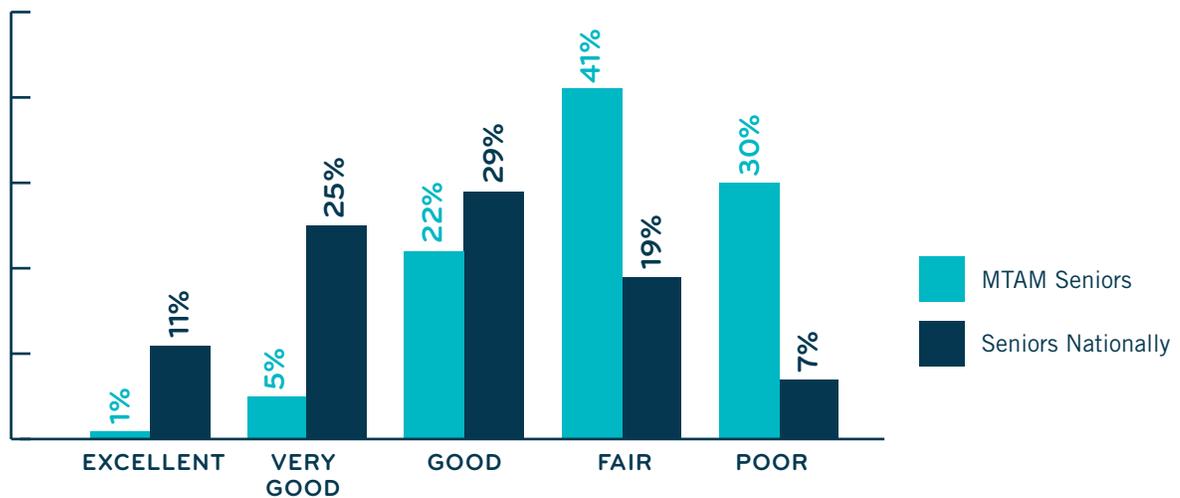
Table 2. Respondents’ Participation in Survey

	N	%
DO YOU FEEL THAT THE RESPONDENT UNDERSTOOD THE QUESTIONS?		
Yes	592	98%
No	12	2%
DO YOU FEEL THAT THE RESPONDENT WAS COGNITIVELY CAPABLE OF RESPONDING?		
Yes	587	97%
No	16	3%
DID THE INTERVIEW SEEM TIRING FOR THE RESPONDENT?		
Yes	122	20%
No	481	80%
IF YES, DO YOU THINK THAT THE RESPONDENT BEING TIRED LIMITED THE INFORMATION YOU WERE ABLE TO COLLECT DURING THE INTERVIEW?		
Yes	31	28%
No	80	72%
DID THE RESPONDENT HAVE A HEARING DIFFICULTY?		
Yes	99	16%
No	505	84%
IF YES, DO YOU FEEL THE RESPONDENT’S HEARING DIFFICULTY LIMITED THE INFORMATION YOU WERE ABLE TO COLLECT DURING THE INTERVIEW?		
Yes	27	28%
No	69	72%
DID THE PERSON WHO PROVIDED THE ANSWERS HAVE DIFFICULTY UNDERSTANDING YOU DURING THE INTERVIEW?		
Yes	73	12%
No	523	88%
IF YES, DO YOU FEEL THE RESPONDENT’S DIFFICULTY IN UNDERSTANDING YOU LIMITED THE INFORMATION YOU WERE ABLE TO COLLECT DURING THE INTERVIEW?		
Yes	36	49%
No	37	51%

COMPARING CHARACTERISTICS OF INDIVIDUALS ON WAITING LISTS FOR MEALS ON WHEELS TO THE POPULATION OF OLDER, COMMUNITY-DWELLING AMERICANS

Results from the comparison of our MTAM sample of individuals on waiting lists for home-delivered meals to the national population of community-dwelling older adults suggest that older adults on waiting lists for home-delivered meals have significantly worse self-rated health than older Americans living in the community (see Figure 3). In particular, over 70% of individuals in the MTAM sample of seniors on waiting lists rated their health as “Fair” or “Poor,” compared to 26% of community-living older adults, nationally.

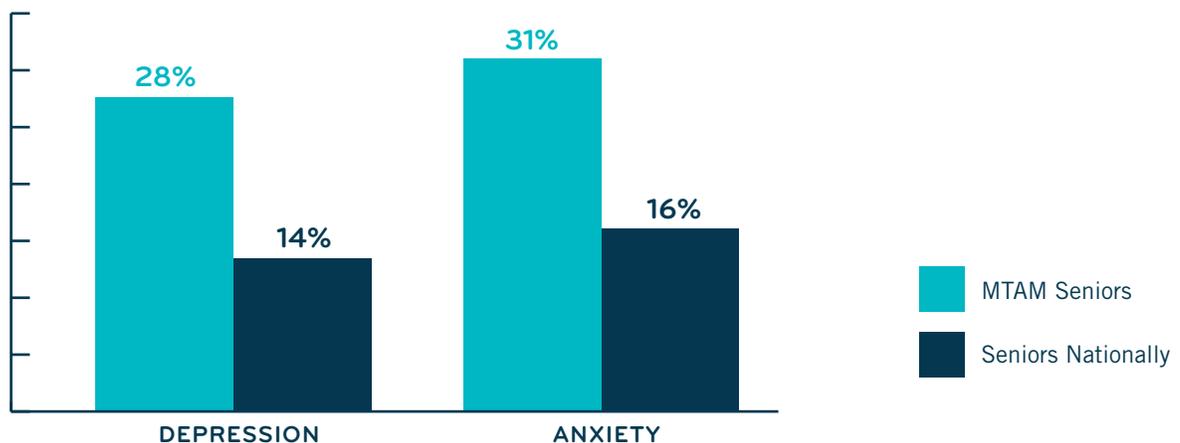
Figure 3. Differences in Self-Rated Health between the Sample on Waiting Lists and the Population of Older Adults



Note: Differences between groups are significant at the $p < 0.001$ level; MTAM, More Than a Meal

When examining mental health, 28% of seniors in the MTAM sample were characterized as being depressed using the PHQ-2, compared to 14% of seniors in the national population (see Figure 4). When examining signs and symptoms of generalized anxiety disorder using the GAD-2, 31% of seniors in the MTAM sample screened positive for anxiety, compared to 16% in the national population of older adults. The differences in anxiety and depression between groups were statistically significant.

Figure 4. Differences in Rates of Depression and Anxiety between the Sample on Waiting Lists and the Population of Older Adults



Note: Differences between groups are significant at the $p < 0.001$ level; MTAM, More Than a Meal; Depression measured using the PHQ-2 and anxiety measured using the GAD-2

When examining rates of falls, we found that individuals on waiting lists for home-delivered meals were significantly more likely to have fallen in the past month than the national population of older adults (see Table 3). Among those who had fallen in our sample, they fell on average 2.2 times, ranging from 2-20 falls. In addition to reporting a fall, a significantly higher proportion of our sample reported being fearful of falling compared to the national population. In addition, of those who were fearful of falling, a significantly larger proportion of individuals in the MTAM sample indicated that those fears were more likely to limit their activities than the national population of older adults.

Table 3. Differences in Rates of Falls and Worries about Falls in the Sample on Waiting Lists and the Population of Older Adults

	MTAM SENIORS	SENIORS NATIONALLY
Fallen	27%	10%
Worried about falling	56%	27%
Fear limited activities	79%	42%

Note: Differences between groups on each question are significant at the $p < 0.001$ level; MTAM, More Than a Meal

Finally, in terms of meal preparation and grocery shopping, 87% of our sample of individuals on waiting lists report being physically unable to shop for groceries and 69% report being physically unable to prepare or heat up food. Following others' work in this area,²¹ we calculated the proportion of older adults in the NHATS sample who reported needing assistance shopping for groceries and preparing food. Respondents were asked a series of questions including if, in the last month, they performed each activity (e.g., grocery shopping) by themselves or with assistance. Respondents who performed an activity without assistance were asked how difficult it was to do the activity alone. Respondents who replied (a) they had assistance with shopping or preparing food for health or functioning reasons or (b) they performed the activity themselves with difficulty were considered to have need for assistance, and dichotomous indicators were created for each activity (e.g., needs assistance with shopping, yes/no). As seen in Table 4, the MTAM sample was almost four times as likely to require assistance shopping for groceries and preparing food than the national population of older adults.

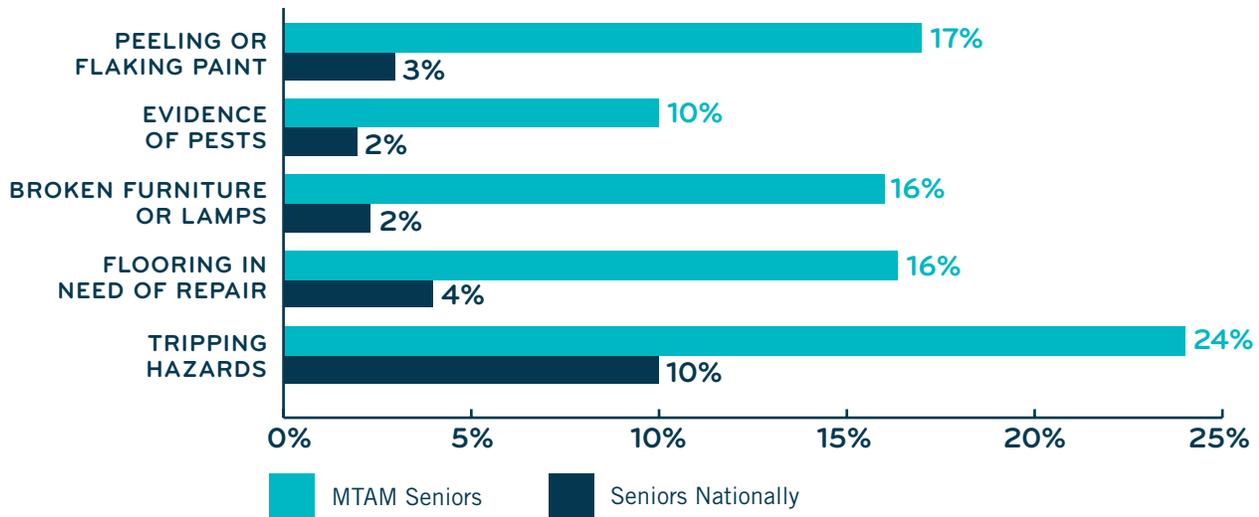
Table 4. Differences in Rates of Individuals Needing Assistance to Shop for Groceries and Prepare Food between the Sample of Individuals on Waiting Lists and the National Population of Seniors

	MTAM SENIORS	SENIORS NATIONALLY
Shop for groceries	87%	23%
Prepare or heat up food	69%	20%

Note: Differences between groups for each question are significant at the $p < 0.001$ level; MTAM, More Than a Meal

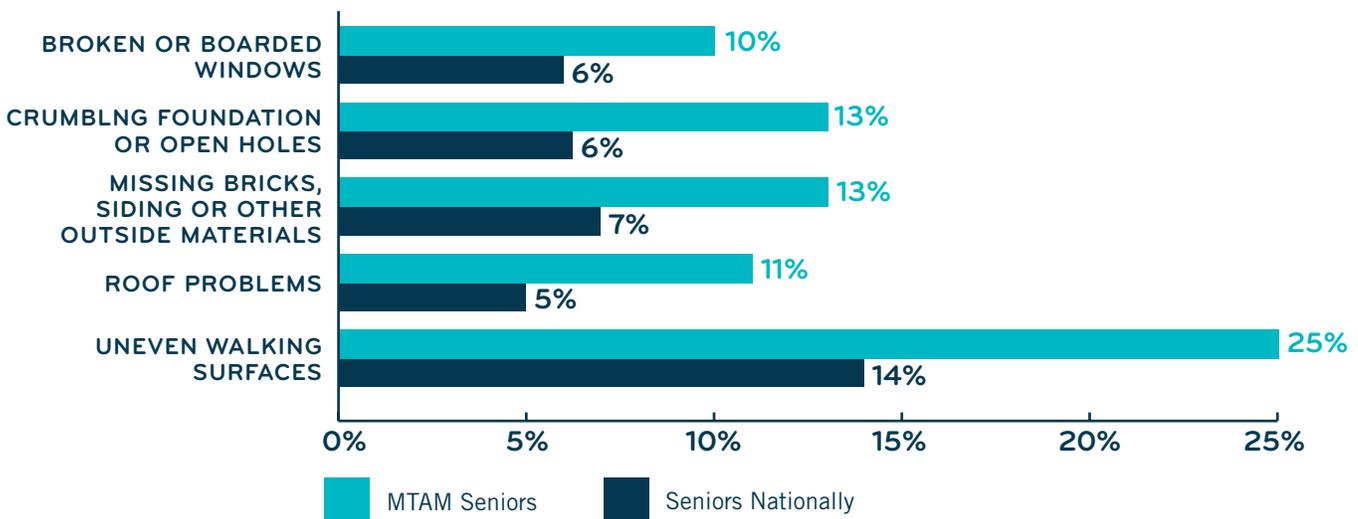
According to interviewers' observations, older adults on Meals on Wheels waiting lists have more hazards inside and outside the home than seniors nationally (see Figures 5 and 6).

Figure 5. Differences in Rates of Hazards Inside the Home for the Sample of Waiting Lists and the Population of Older Adults



Note: Differences between groups for each question are significant at the $p < 0.001$ level; MTAM, More Than a Meal

Figure 6. Differences in Rates of Hazards Outside the Home for the Sample on Waiting Lists and the Population of Older Adults



Note: Differences between groups for each question are significant at the $p < 0.001$ level; MTAM, More Than a Meal

ATTRITION ANALYSES

After randomization, 18 participants (9 receiving daily and 9 receiving frozen, weekly) no longer wanted to receive meals, 17 died, 24 moved (either to a nursing home or to a different location), 11 were in the hospital during the follow-up period, 15 refused to participate in the follow-up telephone interview, and 45 could not be reached for follow-up. Rates of attrition between groups within sites were analyzed. There were not statistically significant differences in rates of attrition by group, by site. See Table 5 for a breakdown of attrition rates by group, by site. A final sample of 154 remained in the control group, 174 in the daily-delivery group, and 131 in the frozen, once-weekly delivery group.

Table 5. Attrition Rates by Site, by Group

SITE		CONTROL	DAILY	WEEKLY FROZEN	TOTAL
A	Initial interviews	27	31	26	84
	Follow-up interviews	27	31	26	84
B	Initial interviews	5	5	5	15
	Follow-up interviews	4	5	4	13
C	Initial interviews	25	26	24	75
	Follow-up interviews	21	19	17	57
D	Initial interviews	51	n/a	48	99
	Follow-up interviews	26	n/a	26	52
E	Initial interviews	30	54	n/a	84
	Follow-up interviews	27	41	n/a	68
F	Initial interviews	41	60	55	156
	Follow-up interviews	35	48	36	119
G	Initial interviews	1	10	11	22
	Follow-up interviews	0	7	8	15
H	Initial interviews	25	25	25	75
	Follow-up interviews	18	20	18	56

MENTAL HEALTH IMPROVEMENT

We used the GAD-2 to measure anxiety among participants. A GAD score of greater than 3 indicates anxiety. For the sample of individuals reporting in both time periods, we calculated the proportion of clients who formerly exhibited symptoms of anxiety but no longer met those criteria in the follow-up survey. We found that the two groups receiving meals had the greatest proportions of individuals improve during the time period, with the group receiving daily-delivered meals having the greatest rate of improvement (see Table 6). We also examined changes in rates of depression using the PHQ-2. However, there was no signal that meals had an effect on rates of depression in this study.

Table 6. Improvement in Mental Health (Anxiety) Over the Study Period, by Group

	CONTROL		DAILY		WEEKLY FROZEN	
	N	%	N	%	N	%
Did not improve	131	93%	143	88%	112	90%
Improved	10	7%	19	12%	13	10%

Note: Differences between groups are not statistically significant

IMPROVED SELF-REPORTED HEALTH

In the sample of individuals who reported in both time periods, we examined the rate of improvement in self-rated health (see Table 7). Results suggest that among the group receiving daily meals, a larger, though not statistically significantly different, proportion of individuals improved in their rating of self-reported health.

Table 7. Improvement in Self-Rated Health During Study Period, By Group

	CONTROL		DAILY		WEEKLY FROZEN		TOTAL
	N	%	N	%	N	%	
Did not improve	117	77%	123	71%	97	76%	337
Improved	35	23%	50	29%	30	24%	115
Total	152		173		127		452

Note: Differences between groups are not statistically significant

FEWER HEALTHCARE VISITS (HOSPITALIZATIONS)

Using our sample of participants with data at both time points (pre- and post-intervention), we found that 14% of individuals who received meals were hospitalized during the study period compared to 20% of individuals in the control group. Though not statistically significant at the $p < 0.05$ level, it was approaching significance. ($\chi^2 = 2.99$, $p = 0.08$). There were no significant differences in hospitalization between the types of meal delivery.

REDUCED RATE OF FALLS

Our sample of participants with data at both time points (pre- and post-intervention) was stratified by whether they had fallen in the last three months. Among participants who had fallen in the past three months as reported on their baseline interview ($n = 116$), individuals who received daily hot meals were significantly less likely to have fallen again during the three month period receiving meals when compared to those individuals in the control and frozen meal group (see Table 8). Specifically, 79% of individuals receiving daily meals who had fallen in the past, did not fall again during the study period, compared to 59% in the frozen group and 46% in the control group ($\chi^2 = 9.718$, $p < 0.01$).

Table 8. Reported Fall during the Study Period Among Individuals Reporting a Fall at Baseline, By Group

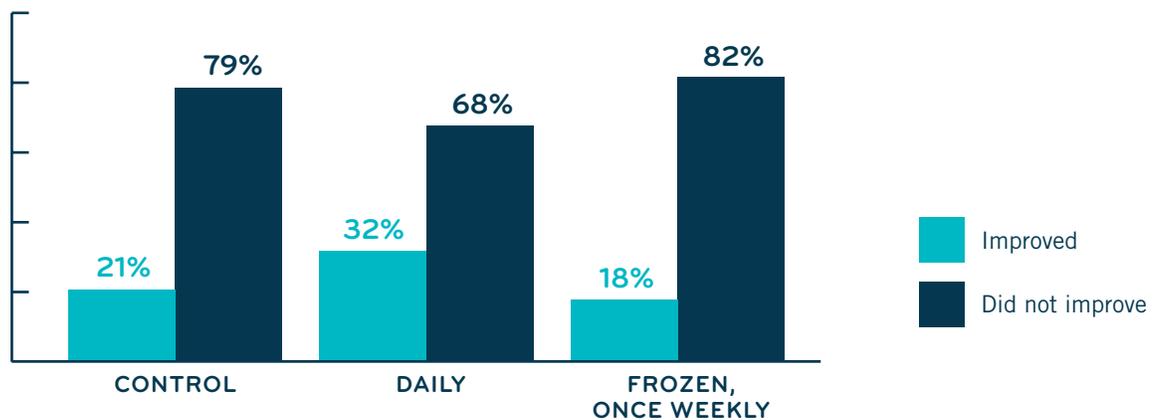
	CONTROL		DAILY		WEEKLY FROZEN		TOTAL
	N	%	N	%	N	%	
Did not improve	19	54%	10	21%	14	41%	43
Improved	16	46%	37	79%	20	59%	73
Total	35		47		34		116

Note: Differences between groups are statistically significant ($\chi^2 = 9.718$, $p < 0.01$)

DECREASES IN WORRY ABOUT BEING ABLE TO REMAIN IN HOME

When examining the change in participants' ratings of how often they worry about being able to remain in their homes, we see that the group that received daily-delivered meals worried less often at the end of the study period than at baseline when compared to the other two groups. Specifically, one third of participants receiving daily-delivered meals displayed decreases in how often they worry about their ability to remain in their homes (see Figure 7). These differences were statistically significant ($\chi^2= 9.46$ $p=0.009$). We also stratified the sample to examine improvement in worry about being able to remain at home among individuals that lived alone. We found the differences between groups to be even more pronounced. Among those that live alone, 42% of participants receiving daily-delivered meals reported less worry at follow-up compared to 26% of participants receiving weekly, frozen meals and 18% of the control group. This difference was also statistically significant ($\chi^2= 9.04$, $p=0.01$).

Figure 7. Improvement in How Often Participants Worry about being Able to Remain in their Homes Over the Study Period, by Group

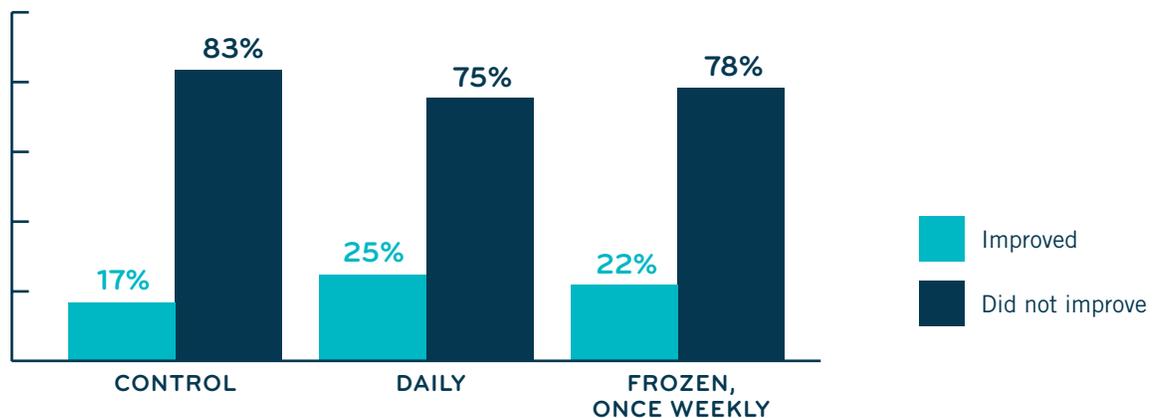


Note: Differences between groups are statistically significant ($\chi^2=9.46$, $p=0.009$)

IMPROVEMENT IN FEELINGS OF ISOLATION

The groups receiving home-delivered meals had improvements in their ratings of how often they feel isolated, with the group receiving daily-delivered meals having the greatest rate of improvement (see Figure 8). These estimates, while trending in the right direction, were underpowered to detect a significant group effect. However, when we examine improvement in ratings of how often individuals who live alone feel isolated, we see a statistically significant difference by group. Specifically, 36% of individuals receiving daily-delivered meals exhibit improvement in feelings of isolation compared to 29% of individuals receiving frozen, weekly-delivered meals and 14% of the control group ($\chi^2= 8.92$, $p=0.01$).

Figure 8. Improvement in How Often Participants Report Feeling Isolated Over the Study Period, by Group

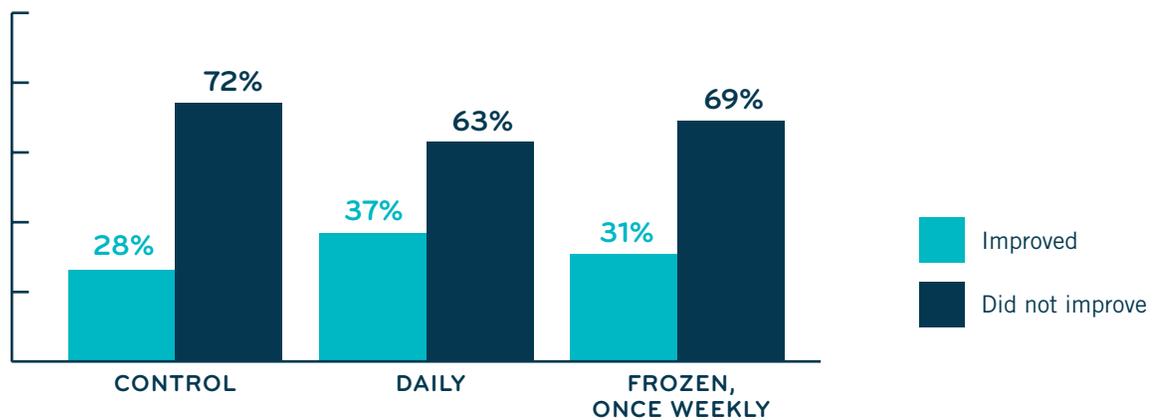


Note: Differences between groups are not statistically significant

IMPROVEMENT IN LONELINESS

We used the three items that comprise the UCLA Loneliness Scale to create a loneliness score for individuals at baseline and follow-up. Results suggest that individuals who received home-delivered meals experienced improvements in feelings of loneliness with the group that received daily-delivered meals experiencing the greatest improvements (see Figure 9). When we stratified the sample to examine improvement in loneliness among individuals that live alone, we found greater rates of improvement in loneliness among the groups receiving meals. Specifically, 46% of participants receiving daily-delivered meals and 45% of participants receiving weekly, frozen meals reported less loneliness at follow-up compared to 28% of the control group. This difference, while only marginally statistically significant ($p=0.09$), suggests that home-delivered meals may improve feelings of loneliness among individuals living alone.

Figure 9. Improvement in Feelings of Loneliness during Study Period, by Group



Note: Differences between groups are not statistically significant

INCREASED FEELINGS OF SAFETY

Between the two groups of meal recipients, we saw statistically significant differences in their ratings of the effect of home-delivered meals. When asked, “Does having home-delivered meals help you to feel safe in your home?” 80% of individuals receiving traditional, daily-delivered meals said that they did compared to 70% of individuals receiving frozen, weekly delivered meals ($\chi^2= 4.11, p=0.04$). When probed about why the meals help them feel safe, the qualitative results suggest the reasons differed between the two groups. Among the group receiving daily-delivered meals, almost half (49%) reported some aspect of the delivery (i.e., social contact or being checked in on) contributing to feelings of safety, compared to 24% of respondents receiving frozen meals.

For example, in response to the follow-up probe, “In what ways does it make you feel safe?” some responses from individuals receiving daily-delivered meals that referenced the delivery of the meal were:

- “Someone will see me daily.”
- “Because someone is coming over.”
- “Someone to watch over me.”
- “Someone checking in daily.”
- “Someone checking in on me — if I fall, they can call an ambulance.”

The other themes that emerged from these data suggest that respondents also attribute feelings of safety to receiving a dependable, healthy meal, the ability to stay out of the kitchen, and the fact that they do not have to leave their home.

PROVIDING HEALTHIER FOODS, PROMOTING SOCIALIZATION, AND REDUCING LONELINESS

When participants were asked, “Do services received from the home-delivered meals program help you to eat healthier foods?” there was a statistically significant difference observed between the two groups: 41% of individuals receiving frozen, weekly delivered meals said yes compared to 59% of individuals receiving daily-delivered meals ($\chi^2= 4.24$, $p=0.04$). When asked “If you did not receive home-delivered meals, would you say “I would have little daily contact with people?” 35% of participants who received frozen meals said yes compared to 65% of individuals receiving daily-delivered meals ($\chi^2= 5.21$, $p=0.02$). This difference was also statistically significant. In response to the question “Do services received from the home-delivered meals program help you feel less lonely?” 65% of individuals receiving weekly-delivered frozen meals said yes compared to 77% of individuals receiving daily-delivered meals ($\chi^2= 4.61$, $p=0.03$) indicating a statistically significant difference in the groups’ feelings of loneliness.

SATISFACTION WITH HOME-DELIVERED MEALS

When asked if participants would recommend the program to others, 99% of individuals in both groups indicated that they would recommend the program. In an effort to understand what factors of the program participants liked and if that varied by meal delivery modality, interviewers were instructed to probe and ask participants why they would recommend the program. When we examined the reason that individuals gave for why they would recommend the home-delivered meals they received, the majority of individuals receiving the daily-delivered meals referenced aspects of the help (i.e., convenience, service to caregivers, provides peace of mind) that the program provides as well as aspects of the delivery experience (i.e., friendly visit, check-in, gives them purpose in their day). For example, reasons given by individuals receiving daily-delivered meals for referring others to the program related to the dimension of help, include:

“Helps with day to day for those very weak and tired.”

“Helps with getting you food.”

“I have a lot of hungry friends that need help.”

“It’s a very good program to help people.”

“Food comes ready to eat and it makes one feel comfortable.”

“Very helpful peace of mind.”

Reasons given by individuals receiving daily-delivered meals related to the delivery experience include:

“It is great to get to see someone every day and a lot of the people who volunteer are people I knew back in the day.”

“Improved my health. Gives me purpose in life meeting my driver.”

“Because seniors need checking in on because their children are busy.”

“People are courteous, food is good, always hot! Drivers really care!”

Almost three quarters of individuals providing feedback for why they would recommend the frozen meals was related to aspects of the meals themselves (i.e., cost, tasty, healthy, and dependable). For example, respondents receiving frozen meals said that they would recommend the meals because:

“Because it is good for you cost wise and makes you feel better.”

“It’s great for people who are having trouble preparing their meals or affording food.”

“Before the meals I would just snack here and there but now I eat a whole meal and it makes me feel better.”

“Something you can depend on when you can’t get someone to take you to the store.”

“Good, balanced meals.”

The differences in the reasons given by the two groups for why they would recommend the program and differences in what participants place value on about the program suggest the experiences between the two groups differ significantly and meet different needs.

DISCUSSION

KEY FINDINGS

This study evaluated the needs of 626 people on Meals on Wheels waiting lists at eight sites around the country. When contrasted against a nationally representative comparison sample of aging Americans, those on Meals on Wheels waiting lists were found to be significantly more vulnerable. Specifically, those on waiting lists were significantly more likely to:

- Report poorer self-rated health
- Screen positive for depression and anxiety
- Report recent falls and fear of falling that limited their ability to stay active
- Require assistance with shopping or preparing food
- Have hazards both inside and outside the home

This population is frail and has significant needs. Meals on Wheels is, for many older adults, the first in-home service they receive and is often their first point of contact with home- and community-based services. As such, there are important opportunities to include valuable screening questions within intake interviews that might direct this vulnerable population to additional community-based services.

Over a 15-week period, this pilot study evaluating a home-delivered meals program recognized several additional findings. Specifically, those receiving home-delivered meals had greater improvements in anxiety, self-rated health, isolation, loneliness, and had reduced rates of hospitalizations and falls compared to the group that did not receive meals.

We see the greatest improvements over the study period when comparing those who received daily-delivered meals to the other two groups (individuals who received frozen, weekly-delivered meals and the control group). Specifically, between baseline and follow-up respondents receiving daily-delivered meals were more likely to exhibit:

- Improvement in mental health (i.e., anxiety)
- Improvement in self-rated health
- Reductions in the rate of falls
- Improvement in feelings of isolation and loneliness
- Decreases in worry about being able to remain in home

The daily-delivered meals program appeared to have the largest impact on individuals who live alone. Specifically, individuals who live alone and received daily-delivered meals were significantly more likely to have improvements in feelings of isolation and loneliness and worries about the ability to age in place compared to the other two groups living alone.

In addition, our study found that individuals receiving daily-delivered were more likely to attribute their meals to making them feel safer and report that their meals helped them to eat healthier foods. They also noted that receiving meals resulted in more social contact and less loneliness than individuals receiving frozen, weekly-delivered meals.

IMPLICATIONS

These findings have implications for our population of older adults and our healthcare system as a whole. Previous research has suggested that loneliness is associated with increased risk of functional decline and death,²² health-related behavioral and biological risk factors,^{23,24} as well as increased risk of ER visits²⁵ and nursing home placement.²⁶ Social isolation has been shown to be related to health-related behavioral and biological risk factors²³ and increased mortality.²⁷ Therefore, by identifying loneliness and isolation as well as implementing interventions, like Meals on Wheels, we can improve the health and well-being of older adults, particularly individuals that live alone, and decrease the influence of these modifiable risk factors on our healthcare system. By improving feelings of isolation and loneliness, our findings in combination with previous research suggest the Meals on Wheels program has the potential to decrease healthcare costs.

One of the central goals of the Meals on Wheels program is to enable homebound older adults to continue to reside independently in their homes despite their limitations. Findings from this study suggest that daily-delivery of meals eases older adults' worries about their ability to age in place, thereby providing a sense of security and confidence. Evidence suggests that programs that support aging in place may yield cost savings for families, government, and health systems.²⁸ While our research suggests that Meals on Wheels improves participants' confidence that they will be able to age in place, more research is needed to understand the impact of home-delivered meals on community tenure and rates of institutionalization.

The finding that daily-delivered meals decreases the likelihood of falling among previous fallers also has significant implications. The incidence and prevalence of older Americans who fall and suffer serious injuries has soared in the past decade. More than 2.4 million over the age of 65 were treated in emergency departments for injuries from falls in 2012, and in the past 10 years, over 200,000 Americans age 65+ died after a fall. Medicare costs per fall averaged between \$13,797 and \$20,450 (in 2012 dollars).²⁹ Our data suggest that individuals who are in need of home-delivered meals make up a large proportion of the individuals who are at risk of falls. Our data also suggest that among those who have fallen in the past, receiving daily-delivered meals may decrease the likelihood of falling again. Future research should investigate the relationship between meal-delivery method and the incidence and frequency of falls among all individuals, regardless of their fall history. In addition, further evaluation is required to understand why daily-delivered meals had the beneficial effect of reducing falls and whether this simple intervention has the capacity to reduce overall fall-related healthcare costs.

There is a growing body of evidence that suggests that fear of falling may constitute an important risk factor for unnecessary restriction of activity that can lead to greater disability, decreased social activity, and ultimately reduced ability to live independently.³⁰⁻³⁴ In addition, falling has been shown to be a risk-factor for developing fear of falling with 21% – 39% of patients without fear of falling at baseline developed fear of falling after a fall during follow-up.^{30,35} Therefore, interventions like daily-delivered meals that reduce the likelihood of falls could thereby, subsequently reduce the likelihood of fear of falling which predicts further decline.

Feeling safe is an emotional state during which a person perceives that there is no imminent danger of psychological or physical injury. Factors that influence feeling safe have yet to be fully explored, but have been related to concepts such as trust, knowing, control, and hope.³⁶ There has been little work regarding the effects of feeling safe. However, perception of safety is believed to be a factor that contributes to behaviors and beliefs that individuals can remain in their home. More work is needed to examine the direct effects of feelings of safety and security and how that influences older adults' health and community tenure. Regardless, we believe our finding that participants who receive daily-delivered meals feel safer in their homes has significant implications that remain to be quantified.

LIMITATIONS

It is important to note this study's limitations. Given the size of the sample that contributed information in both time points, we were potentially underpowered to detect a statistically significant group difference in particular outcomes with rare events (like hospitalizations). In addition, because of the rate of attrition, our findings may underestimate the true effect of the intervention on outcomes. Future work should include larger sample sizes and closer follow-up in order to determine the differential effects of the treatment on participants.

Our sample consisted of individuals on waiting lists for home-delivered meals. It is important to point out that all but one site reported that they prioritized their waiting lists so that those most in need would receive services first. Therefore, we believe that the effects seen may have been modest in comparison to those we would have witnessed were we to examine the effectiveness of home-delivered meals in the population currently receiving meals. Future research should include individuals who are determined to be most at need and already enrolled in the program in order to more fully understand the impact that the different meal delivery methods can have on clients' health, healthcare utilization, and quality of life.

While we were trying to make a direct comparison between the traditional Meals on Wheels programs to other for-profit programs that have emerged as a vehicle for delivering meals by drop shipping frozen meals, it appears as though our once-weekly delivery in this study by Meals on Wheels programs were not comparable to the other models of food delivery that might drop ship frozen meals in bulk. This was made evident in the open-ended responses of participants in the group receiving once-weekly-delivered frozen meals. Some respondents receiving frozen meals reported that they enjoyed their interaction with the driver and that they looked forward to their weekly delivery as a chance to visit with the driver. For example, when asked "How do home-delivered meals make you feel safe?", participants receiving frozen meals said things like "Very nice delivery person", "Nice people to check on me", and "Having someone to check on me every week". Therefore, we believe the effect we would have seen in a direct comparison of Meals on Wheels programs and alternative for-profit models was attenuated by the very nature of the interaction between the Meals on Wheels program delivery person and the client. We do not expect such responses to be given when frozen meals are delivered via a courier delivery service and left on client's front door as is typical in the models we were trying to compare. Future work comparing meal delivery methods should limit the level of interaction between the meal delivery person and client in order to better represent the limitation of frozen, drop shipped meals programs.

Finally, it is important to emphasize that these findings are based on self-report. Therefore, there are some potential sources of recall and response bias (e.g., social desirability, inaccurate memory). However, these surveys consisted of validated and reliable questions drawn from other studies examining subjective states. Future work comparing, for example, Medicare claims-based measures of hospitalizations or medical records would be a valuable contribution.

CONCLUSIONS

Individuals on waiting lists for home-delivered meals have significantly less social support and more functional impairment than a cross section of the population of older adults living in the community.

Home-delivered meals improve the well-being of older adults. For most aspects, our results signal that the benefits of the contact afforded by daily-delivered meals exceed those of once-weekly-delivered, frozen meals suggesting that the Meals on Wheels program is a superior option.

This pilot study showed that it is feasible to conduct a randomized control trial in a social service setting. The findings from this pilot study will help to guide the development of a large trial to evaluate the effectiveness of different meal delivery modalities. This well-designed and conducted pilot study helped to identify the best research process and appropriate outcomes to measure. In addition, this pilot study provided an opportunity for

us to assess the research protocol and instruments. Therefore, we achieved the secondary outcomes of this study by evaluating the feasibility, compliance, and acceptability of the research protocol including a) the feasibility of participant recruitment, b) the appropriateness of data collection questionnaires c) the retention rate for this type and duration of study and d) the suitability of the chosen outcomes measures with this population. In addition, we were able to determine the size of the effects on the chosen outcomes in order to identify sample size considerations for future studies. Through conducting this pilot, we are able to refine methods for larger scale impact evaluation.

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APPENDIX A

Estimated FY2013 Older Americans Act Nutrition Cuts Due to the Sequester

State	Congregate Nutrition Services			Home Delivered Nutrition Services			Nutrition Services Incentive Program			Total OAA Nutrition \$ Cut
	FY 2013 Estimate	% Change +/- FY 2012	\$ Change +/- FY 2012	FY 2013 Estimate	% Change +/- FY 2012	\$ Change +/- FY 2012	FY 2013 Estimate	% Change +/- FY 2012	\$ Change +/- FY 2012	
Alabama	\$6,072,418	-9.19%	-\$614,531	\$3,191,841	-5.38%	-\$181,485	\$2,792,368	-4.81%	-\$141,100	-\$937,115
Alaska	\$2,077,361	-4.79%	-\$104,512	\$1,025,885	-4.79%	-\$51,612	\$354,327	-4.81%	-\$17,904	-\$174,028
Arizona	\$8,210,315	-7.63%	-\$678,193	\$4,315,582	-3.75%	-\$168,140	\$2,016,497	-4.81%	-\$101,895	-\$948,227
Arkansas	\$4,163,564	-0.94%	-\$39,509	\$2,004,393	-5.47%	-\$115,985	\$2,511,121	-4.81%	-\$126,888	-\$282,382
California	\$39,990,129	-8.12%	-\$3,534,173	\$21,019,987	-4.26%	-\$935,295	\$12,352,820	-4.81%	-\$624,194	-\$5,093,663
Colorado	\$5,460,503	-6.87%	-\$402,810	\$2,870,200	-2.96%	-\$87,549	\$1,427,352	-4.81%	-\$72,125	-\$562,484
Connecticut	\$5,241,452	0.00%	\$0	\$2,413,322	-5.88%	-\$150,769	\$1,372,498	-4.81%	-\$69,353	-\$220,122
Delaware	\$2,077,361	-4.79%	-\$104,512	\$1,025,885	-4.79%	-\$51,612	\$677,758	-4.80%	-\$34,173	-\$190,296
District of Columbia	\$2,077,361	-4.79%	-\$104,512	\$1,025,885	-4.79%	-\$51,612	\$481,153	-4.80%	-\$24,260	-\$180,384
Florida	\$28,731,849	-8.69%	-\$2,734,419	\$15,102,303	-4.86%	-\$771,465	\$6,842,387	-4.81%	-\$345,749	-\$3,851,633
Georgia	\$10,107,384	-7.62%	-\$833,711	\$5,312,738	-3.74%	-\$206,416	\$2,635,541	-4.81%	-\$133,175	-\$1,173,303
Hawaii	\$2,077,361	-4.79%	-\$104,512	\$1,025,885	-4.79%	-\$51,612	\$460,002	-4.81%	-\$23,244	-\$179,368
Idaho	\$2,077,361	-4.79%	-\$104,512	\$1,025,885	-4.79%	-\$51,612	\$693,534	-4.81%	-\$35,045	-\$191,168
Illinois	\$17,286,541	0.00%	\$0	\$7,786,284	-5.23%	-\$429,696	\$6,570,596	-4.81%	-\$332,016	-\$761,711
Indiana	\$8,105,861	-5.00%	-\$426,624	\$4,080,631	-5.20%	-\$223,832	\$1,702,256	-4.81%	-\$86,016	-\$736,472
Iowa	\$5,081,501	0.00%	\$0	\$2,114,386	-5.77%	-\$129,471	\$2,018,124	-4.81%	-\$101,977	-\$231,447
Kansas	\$4,089,903	0.00%	\$0	\$1,796,165	-5.25%	-\$99,524	\$2,136,522	-4.81%	-\$107,960	-\$207,483
Kentucky	\$5,570,252	-6.18%	-\$366,917	\$2,842,618	-5.09%	-\$152,449	\$1,743,715	-4.81%	-\$88,111	-\$607,477
Louisiana	\$5,645,998	-1.54%	-\$88,308	\$2,756,516	-4.71%	-\$136,249	\$3,119,607	-4.81%	-\$157,635	-\$382,193
Maine	\$2,077,361	-4.79%	-\$104,512	\$1,032,933	-4.91%	-\$53,336	\$599,387	-4.80%	-\$30,221	-\$188,069
Maryland	\$6,728,019	-8.36%	-\$613,774	\$3,536,444	-4.52%	-\$167,414	\$1,569,377	-4.81%	-\$79,301	-\$860,490
Massachusetts	\$9,780,267	0.00%	\$0	\$4,358,642	-5.23%	-\$240,537	\$5,706,192	-4.81%	-\$288,337	-\$528,874
Michigan	\$12,926,499	-6.47%	-\$894,199	\$6,614,056	-5.14%	-\$358,383	\$6,908,895	-4.81%	-\$349,110	-\$1,601,693
Minnesota	\$6,398,439	-7.19%	-\$495,688	\$3,324,156	-4.42%	-\$153,722	\$1,862,114	-4.81%	-\$94,094	-\$743,504
Mississippi	\$3,891,114	0.00%	\$0	\$1,849,430	-5.39%	-\$105,363	\$1,299,840	-4.81%	-\$65,682	-\$171,045
Missouri	\$8,467,047	0.00%	\$0	\$4,004,304	-5.38%	-\$227,681	\$3,874,796	-4.81%	-\$195,795	-\$423,476
Montana	\$2,077,361	-4.79%	-\$104,512	\$1,025,885	-4.79%	-\$51,612	\$1,143,871	-4.81%	-\$57,800	-\$213,924
Nebraska	\$2,738,802	0.00%	\$0	\$1,170,665	-5.28%	-\$65,257	\$1,112,782	-4.81%	-\$56,229	-\$121,486
Nevada	\$3,138,756	-7.77%	-\$264,427	\$1,649,822	-3.90%	-\$66,954	\$1,004,984	-4.81%	-\$50,782	-\$382,164
New Hampshire	\$2,077,361	-4.79%	-\$104,512	\$1,025,885	-4.79%	-\$51,612	\$1,123,577	-4.81%	-\$56,775	-\$212,899
New Jersey	\$12,190,488	0.00%	\$0	\$5,675,371	-5.72%	-\$344,327	\$3,491,377	-4.81%	-\$176,421	-\$520,748
New Mexico	\$2,534,649	-8.10%	-\$223,402	\$1,332,286	-4.25%	-\$59,135	\$1,918,202	-4.81%	-\$96,928	-\$379,465
New York	\$28,963,855	0.00%	\$0	\$12,553,783	-5.66%	-\$753,174	\$14,646,213	-4.81%	-\$740,081	-\$1,493,254
North Carolina	\$11,649,351	-8.19%	-\$1,039,192	\$6,123,241	-4.34%	-\$277,805	\$3,170,710	-4.81%	-\$160,218	-\$1,477,215
North Dakota	\$2,077,361	-4.79%	-\$104,512	\$1,025,885	-4.79%	-\$51,612	\$775,361	-4.81%	-\$39,179	-\$195,303
Ohio	\$16,393,785	0.00%	\$0	\$7,818,059	-5.38%	-\$444,527	\$5,431,852	-4.81%	-\$274,474	-\$719,001
Oklahoma	\$5,080,736	-0.23%	-\$11,713	\$2,429,422	-5.43%	-\$139,492	\$2,224,980	-4.81%	-\$112,429	-\$263,634
Oregon	\$5,081,006	-7.80%	-\$429,846	\$2,670,726	-3.93%	-\$109,253	\$1,707,035	-4.81%	-\$86,257	-\$625,357
Pennsylvania	\$21,279,716	0.00%	\$0	\$9,193,131	-5.83%	-\$569,140	\$6,770,504	-4.81%	-\$342,117	-\$911,257
Rhode Island	\$2,077,361	-4.79%	-\$104,512	\$1,025,885	-4.79%	-\$51,612	\$427,630	-4.81%	-\$21,608	-\$177,732
South Carolina	\$6,023,728	-7.80%	-\$509,600	\$3,166,248	-3.93%	-\$129,524	\$1,513,481	-4.81%	-\$76,477	-\$715,600
South Dakota	\$2,077,361	-4.79%	-\$104,512	\$1,025,885	-4.79%	-\$51,612	\$919,484	-4.81%	-\$46,462	-\$202,586
Tennessee	\$8,016,043	-8.55%	-\$749,450	\$4,213,467	-4.71%	-\$208,264	\$1,595,436	-4.81%	-\$80,618	-\$1,038,331
Texas	\$24,971,132	-7.65%	-\$2,068,534	\$13,125,560	-3.78%	-\$515,637	\$11,498,874	-4.81%	-\$581,044	-\$3,165,216
Utah	\$2,354,117	-7.42%	-\$188,675	\$1,237,393	-3.54%	-\$45,411	\$1,302,773	-4.81%	-\$65,830	-\$299,916
Vermont	\$2,077,361	-4.79%	-\$104,512	\$1,025,885	-4.79%	-\$51,612	\$742,473	-4.81%	-\$37,518	-\$193,641
Virginia	\$9,323,168	-8.26%	-\$839,431	\$4,900,531	-4.41%	-\$226,084	\$2,171,168	-4.81%	-\$109,710	-\$1,175,225
Washington	\$8,024,852	-7.36%	-\$637,553	\$4,218,098	-3.47%	-\$151,630	\$1,993,159	-4.81%	-\$100,715	-\$889,898
West Virginia	\$3,305,947	0.00%	\$0	\$1,437,847	-5.86%	-\$89,503	\$1,578,159	-4.81%	-\$79,745	-\$169,248
Wisconsin	\$7,586,993	-2.89%	-\$225,789	\$3,742,705	-5.04%	-\$198,644	\$2,559,984	-4.81%	-\$129,357	-\$553,791
Wyoming	\$2,077,361	-4.79%	-\$104,512	\$1,025,885	-4.79%	-\$51,612	\$755,360	-4.80%	-\$38,085	-\$194,209
American Samoa	\$594,843	0.00%	\$0	\$136,498	0.00%	\$0	\$353,418	-4.81%	-\$17,858	-\$17,858
Guam	\$1,038,680	-4.79%	-\$52,256	\$512,943	-4.79%	-\$25,806	\$0	0.00%	\$0	-\$78,062
Northern Mariana Islands	\$259,670	-4.79%	-\$13,064	\$128,236	-4.79%	-\$6,452	\$55,354	-4.80%	-\$2,791	-\$22,306
Puerto Rico	\$4,928,425	-9.44%	-\$513,740	\$2,590,525	-5.64%	-\$154,839	\$2,754,171	-4.81%	-\$139,170	-\$807,749
Virgin Islands	\$1,038,680	-4.79%	-\$52,256	\$512,943	-4.79%	-\$25,806	\$171,422	-4.80%	-\$8,643	-\$86,705
Total \$	\$415,472,170		-\$20,900,436	\$205,177,051		-\$10,320,769	\$148,642,573		-\$7,510,684	-\$38,731,889
Average Cut/State		-4.50%	-\$733,349		-4.72%	-\$362,132		-4.72%	-\$263,533	
Median Cut/State		-4.79%	-\$104,512		-4.79%	-\$129,497		-4.81%	-\$86,137	

APPENDIX B

MORE THAN A MEAL

INTAKE INTERVIEW

SURVEY INSTRUCTIONS

- Ask all the questions and record the answers using this booklet.
- You will sometimes be told to skip over some questions in this survey. When this happens, you will see an arrow with a note that tells you what question to answer next, like this:

[1] Yes

[2] No → If No, Go to Question B12

- You will sometimes see response items in capital letters that look like this:

[99] REFUSED

[88] DON'T KNOW

You do not read these response items.



Go to the next page.

IVWR: ENTER PARTICIPANT IDENTIFICATION

□-□□□□

IVWR: ENTER PARTICIPANT FIRST NAME AND INITIAL OF LAST NAME:

IVWR: ENTER DATE OF INTAKE/ INITIAL EVALUATION.

□□□□□□

Introduction

My name is (INTERVIEWER NAME) and I am from (PROGRAM NAME). We are collecting information from you regarding your health, community, and social relationships. By participating in this interview, the information you provide will be used to improve the health and nutrition services available to adults like yourself. This interview is expected to last less than 45 minutes.

Please be assured that any answers you give us will remain confidential and nothing you say will be connected with your name.

Do you have any questions at this time? Are you ready to begin?

I have a number of questions that I am going to ask you. Some of the questions that I will ask you next will be easy; others may be more difficult. They are all routine questions that we ask of everyone.

During this interview I want to be mindful of your time. In order to get through all of the questions as efficiently as possible, I will read you a list of possible responses and need you to pick just one. Sound good?



Go to the next page.

❖ SECTION A (SOCIAL SUPPORT) ❖

A1) Looking back over the last few months, how often do you have contact with friends or family? Is it...

- [1] Daily or almost daily
- [2] Once or twice a week
- [3] Once or twice a month
- [4] Less than once a month
- [99] REFUSED
- [88] DON'T KNOW

A2) Is there a family member, friend, or neighbor that you feel you can call on for help if you need it?

- [1] Yes
- [2] No
- [99] REFUSED
- [88] DON'T KNOW

A3) Do you have a guardian 911/Lifeline system in place?

- [1] Yes→ If Yes, Go to Question A4
- [2] No→ If No, Go to Question A5
- [99] REFUSED→ If Refused, Go to Question A5
- [88] DON'T KNOW→ If Don't Know, Go to Question A5

A4) Do you use it?

- [1] Yes
- [2] No
- [99] REFUSED
- [88] DON'T KNOW

A5) Because of a physical, mental, or emotional condition, do you sometimes need the help of another person with personal care needs, such as eating, bathing, dressing, or getting around inside the home?

- [1] Yes→ If Yes, Go to Question A6
- [2] No→ If No, Go to Question A7
- [99] REFUSED→ If Refused, Go to Question A7
- [88] DON'T KNOW→ If Don't Know, Go to Question A7

A6) What is that person or persons relationship to you?

[IWER: DO NOT READ, CHOOSE ALL THAT APPLY]

- [1] Spouse /Partner
- [2] Child/Child-in-Law
- [3] Grandchild
- [4] Other relative
- [5] Someone else
- [99] REFUSED
- [88] DON'T KNOW

A7) Suppose in the future, you needed help with basic personal care activities like eating or dressing. Do you have relatives or friends who would be willing and able to help you over a long period of time?

- [1] Yes→ If Yes, Go to Question A8
- [2] No→ If No, Go to Question B1
- [99] REFUSED→ If Refused, Go to Question B1
- [88] DON'T KNOW→ If Don't Know, Go to Question B1



Go to the next column.

- A8) What is that person or persons relationship to you?
[IWER: DO NOT READ, CHOOSE ALL THAT APPLY]
- [1] Spouse /Partner
 - [2] Child/Child-in-Law
 - [3] Grandchild
 - [4] Other relative
 - [5] Someone else
 - [99] REFUSED
 - [88] DON'T KNOW

❖ **SECTION B (COMMUNITY)** ❖

Now I'm going to read some statements about the community where you live. Please tell me if you agree a lot, a little, or do not agree with these statements.

- B1) People in this community know each other very well. Do you...
- [1] Agree a lot
 - [2] Agree a little
 - [3] Do not agree
 - [99] REFUSED
 - [88] DON'T KNOW
- B2) People in this community are willing to help each other. Do you...
- [1] Agree a lot
 - [2] Agree a little
 - [3] Do not agree
 - [99] REFUSED
 - [88] DON'T KNOW
- B3) People in this community can be trusted. Do you...
- [1] Agree a lot
 - [2] Agree a little
 - [3] Do not agree
 - [99] REFUSED
 - [88] DON'T KNOW

- B4) I feel safe in my community. Do you...
- [1] Agree a lot
 - [2] Agree a little
 - [3] Do not agree
 - [99] REFUSED
 - [88] DON'T KNOW

❖ **SECTION C (HEALTH AND HEALTHCARE UTILIZATION)** ❖

Now I'd like to ask you some questions about your health.

- C1) Would you say that in general your health is...
- [1] Excellent
 - [2] Very good
 - [3] Good
 - [4] Fair
 - [5] Poor
 - [99] REFUSED
 - [88] DON'T KNOW
- C2) Have you had an overnight hospital stay within the last 3 months, that is since **[I VWR: enter date 3 months prior]**. By hospital stay, we mean a time when you stayed at least one night in the hospital.
- [1] Yes→ **If Yes, Go to Question C3**
 - [2] No→ **If No, Go to Question C4**
 - [99] REFUSED→ **If Refused, Go to Question C4**
 - [88] DON'T KNOW→ **If Don't Know, Go to Question C4**
- C3) How many separate overnight hospital stays have you had in the last 3 months?
 _____ number of stays



Go to the next column.

C4) What was the main reason for your hospitalization [**IWER: LISTEN TO PARTICIPANT OR PROXY AND SELECT MOST APPROPRIATE RESPONSE**]?

- [1] Heart disease
- [2] Respiratory diseases (e.g., emphysema, pneumonia or asthma)
- [3] Kidney diseases
- [4] Hypertension, sometimes called high blood pressure
- [5] Diabetes or high sugar in the blood
- [6] Mental health conditions (e.g., dementia or depression)
- [7] Nausea, diarrhea or other bowel problems
- [8] Stroke
- [9] Bone related disease
- [10] Bone fracture
- [11] Joint (or hip) replacement
- [12] Anemia or iron-poor blood
- [13] Cancer
- [14] Accident or fall
- [15] Other _____
- [99] REFUSED
- [88] DON'T KNOW

C5) In the last 3 months, have you spent any time in a long-term care facility such as a nursing home?

- [1] Yes→ If Yes, Go to Question C6
- [2] No→ If No, Go to Question C7
- [99] REFUSED→ If Refused, Go to Question C7
- [88] DON'T KNOW→ If Don't Know, Go to Question C7

C6) How long did you stay in the long-term care facility?

_____ number of days

C7) Is there a doctor that you think of as your regular doctor, that is, a primary care doctor you usually go to when you are sick and need advice about your health?

- [1] Yes→ If Yes, Go to Question C8
- [2] No→ If No, Go to Question C9
- [99] REFUSED→ If Refused, Go to Question C9
- [88] DON'T KNOW→ If Don't Know, Go to Question C9

C8) Have you seen your primary care doctor/ a doctor within the last 3 months? That is, since [**IVWR: enter date 3 months prior**].

- [1] Yes
- [2] No
- [99] REFUSED
- [88] DON'T KNOW

C9) Do you take 3 or more prescribed or over-the-counter drugs each day?

- [1] Yes→ If Yes, Go to Question C10
- [2] No→ If No, Go to Question C11
- [99] REFUSED→ If Refused, Go to Question C11
- [88] DON'T KNOW→ If Don't Know, Go to Question C11

C10) How many prescribed or over the counter drugs do you take each day?
_____ number of drugs

C11) Have you lost or gained 10 pounds in the last 6 months without wanting to?

- [1] Yes
- [2] No
- [99] REFUSED
- [88] DON'T KNOW



Go to the next column.

❖ SECTION D (FALLS) ❖

These next few questions are about falling down. By falling down we mean any fall, slip, or trip in which you lose your balance and land on the floor or ground or at a lower level.

- D1) In the last month, have you fallen down?
- [1] Yes→ If Yes, Go to Question D2
[2] No→ If No, Go to Question D3
[99] REFUSED→ If Refused, Go to Question D3
[88] DON'T KNOW→ If Don't Know, Go to Question D3
- D2) How many times have you fallen down?
_____ number of falls
- D3) In the last month, did you worry about falling down?
- [1] Yes→ If Yes, Go to Question D4
[2] No→ If No, Go to Question E1
[99] REFUSED→ If Refused, Go to Question E1
[88] DON'T KNOW→ If Don't Know, Go to Question E1
- D4) In the last month, did this worry ever limit your activities?
- [1] Yes
[2] No
[99] REFUSED
[88] DON'T KNOW

❖ SECTION E (HELPERS) ❖

From time to time, all of us are faced with situations where we might need help. Please tell me which most closely matches how you would feel in each of these situations.

- E1) If you had a problem and needed help, is there someone **[IVWR: IF THEY HAVE A SPOUSE OR PARTNER THEN READ: other than a spouse or partner]** who you could rely on?
- [1] Yes
[2] No
[99] REFUSED
[88] DON'T KNOW
- E2) If you had good news or an interesting story, is there someone **[IVWR: IF THEY HAVE A SPOUSE OR PARTNER THEN READ: other than a spouse or partner]** who you could tell?
- [1] Yes
[2] No
[99] REFUSED
[88] DON'T KNOW
- E3) If you needed advice about a personal matter, like money or health, is there someone **[IVWR: IF THEY HAVE A SPOUSE OR PARTNER THEN READ: other than a spouse or partner]** who you could ask?
- [1] Yes
[2] No
[99] REFUSED
[88] DON'T KNOW



Go to the next column.

E4) If you wanted to talk about your worries, is there someone **[IVWR: IF THEY HAVE A SPOUSE OR PARTNER THEN READ: other than a spouse or partner]** who you would feel comfortable talking to?

- [1] Yes
- [2] No
- [99] REFUSED
- [88] DON'T KNOW

E5) If you needed a ride to the doctor or help in shopping for groceries, is there someone **[IVWR: IF THEY HAVE A SPOUSE OR PARTNER THEN READ: other than a spouse or partner]** who would help you?

- [1] Yes
- [2] No
- [99] REFUSED
- [88] DON'T KNOW

E6) Are there times when you are not physically able to shop for groceries?

- [1] Yes→ If Yes, Go to Question E7
- [2] No→ If No, Go to Question E8
- [99] REFUSED→ If Refused, Go to Question E8
- [88] DON'T KNOW→ If Don't Know, Go to Question E8

E7) Is there someone to help you during these times?

- [1] Yes
- [2] No
- [99] REFUSED
- [88] DON'T KNOW

E8) Are there times when you are not physically able to prepare or heat up your food?

- [1] Yes→ If Yes, Go to Question E9
- [2] No→ If No, Go to Question E11
- [99] REFUSED→ If Refused, Go to Question E11
- [88] DON'T KNOW→ If Don't Know, Go to Question E11

E9) How often are there times when you are not physically able to prepare or heat up your food?

- [1] Every meal
- [2] 1 meal a day
- [3] 1-2 meals a week
- [99] REFUSED
- [88] DON'T KNOW

E10) Is there someone to help you?

- [1] Yes
- [2] No
- [99] REFUSED
- [88] DON'T KNOW

Next, please indicate how often each of the statements below is descriptive of you. Never, rarely, sometimes, often?

E11) How often do you lack companionship?

- [1] Never
- [2] Rarely
- [3] Sometimes
- [4] Often
- [99] REFUSED
- [88] DON'T KNOW



Go to the next column.

E12) How often do you feel safe in your house?

- [1] Never
- [2] Rarely
- [3] Sometimes
- [4] Often
- [99] REFUSED
- [88] DON'T KNOW

E13) How often do you feel left out?

- [1] Never
- [2] Rarely
- [3] Sometimes
- [4] Often
- [99] REFUSED
- [88] DON'T KNOW

E14) How often do you feel isolated from others?

- [1] Never
- [2] Rarely
- [3] Sometimes
- [4] Often
- [99] REFUSED
- [88] DON'T KNOW

E15) How often do you worry about being able to remain in your home?

- [1] Never
- [2] Rarely
- [3] Sometimes
- [4] Often
- [99] REFUSED
- [88] DON'T KNOW

❖ SECTION F (QUALITY OF LIFE) ❖

You are doing great! We really appreciate you taking the time to answer our questions. The next few questions focus on your feelings over the last month.

F1) Over the last month, how often have you had little interest or pleasure in doing things? Would you say...

- [1] Not at all
- [2] Several days
- [3] More than half the days
- [4] Nearly every day
- [99] REFUSED
- [88] DON'T KNOW

F2) Over the last month, how often have you felt down, depressed, or hopeless? Would you say...

- [1] Not at all
- [2] Several days
- [3] More than half the days
- [4] Nearly every day
- [99] REFUSED
- [88] DON'T KNOW

F3) Over the last month, how often have you felt nervous, anxious, or on edge? Would you say...

- [1] Not at all
- [2] Several days
- [3] More than half the days
- [4] Nearly every day
- [99] REFUSED
- [88] DON'T KNOW

F4) Over the last month, how often have you been unable to stop or control worrying? Would you say...

- [1] Not at all
- [2] Several days
- [3] More than half the days
- [4] Nearly every day
- [99] REFUSED
- [88] DON'T KNOW



Go to the next column.

Now, please think about your activities in the past 3 months.

F5) Do you participate in any groups, such as a senior center, social or work group, religious-connected group, self-help group, or charity, public service, or community group?

- [1] Yes
- [2] No
- [99] REFUSED
- [88] DON'T KNOW

F6) About how often do you go to religious meetings or services?

- [1] Never or almost never
- [2] Once or twice a year
- [3] Every few months
- [4] Once or twice a month
- [5] Once a week
- [6] More than once a week
- [99] REFUSED
- [88] DON'T KNOW

Next, I am going to ask you some questions about the food you eat.

F7) Are there times when you don't have enough money to buy the food you need?

- [1] Yes
- [2] No
- [99] REFUSED
- [88] DON'T KNOW

F8) How often do you eat alone?

- [1] Every meal
- [2] One meal a day
- [3] Once or twice a week
- [4] Once or twice a month
- [5] Never
- [99] REFUSED
- [88] DON'T KNOW

❖ SECTION G (INSURANCE) ❖

Now we have a few questions about your health insurance.

G1) Are you currently covered by or enrolled in a Medicare Prescription Drug plan, also called Part D?

- [1] Yes
- [2] No
- [99] REFUSED
- [88] DON'T KNOW

G2) Some people have additional coverage besides Medicare to pay for doctors and other medical care. This is sometimes referred to as Medigap or a Medicare Supplement. Do you have this type of health insurance coverage?

- [1] Yes
- [2] No
- [99] REFUSED
- [88] DON'T KNOW

Medicaid also known as **[IVWR: enter state name for Medicaid program]**, is a state program for low-income people or for people on public assistance. Sometimes people with very large medical bills are also covered by Medicaid. Are you now covered by **[Medicaid/IVWR: enter state name for Medicaid program]**,?

- [1] Yes
- [2] No
- [99] REFUSED
- [88] DON'T KNOW

❖ SECTION H (DEMOGRAPHICS) ❖

H1) How old are you?
_____ years



Go to the next column.

We would like to understand how people's medical history affects their need for home-delivered meals, and how use of health care may change as people age. To do that, we need to obtain information about health care costs and diagnoses for statistical purposes. The best place to get this information without taking up a lot more of your time is in the Medicare files. Could you give me your Medicare number for this purpose?

Please know that this number will be kept private and will not be shared with anyone not connected with this study.

Enter Medicare number _____

Thank you so very much for participating in this interview. Your assistance is greatly appreciated.

(PROCEED TO SECTION INTERVIEWER OBSERVATIONS)



Go to the next column.

APPENDIX C

MORE THAN A MEAL

(INTERVIEWER OBSERVATION QUESTIONNAIRE)

SURVEY INSTRUCTIONS

- Ask all the questions and record the answers using this booklet.
- You will sometimes be told to skip over some questions in this survey. When this happens, you will see an arrow with a note that tells you what question to answer next, like this:

[1] Yes

[2] No → If No, Go to Question B12



Go to the next page.

IVWR: ENTER PARTICIPANT IDENTIFICATION

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IVWR: ENTER PARTICIPANT FIRST NAME AND INITIAL OF LAST NAME:

IVWR: ENTER DATE OF INTAKE/ INITIAL EVALUATION.

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IVWR: ENTER DATE OF INTERVIEW.

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Go to the next page.

❖ SECTION A ❖

At the end of each interview, be sure to complete this questionnaire, providing an answer to each question in this survey.

- A1) What was the status of the interview with the respondent?
- [1] Complete→ If Yes, Go to Question A3
 - [2] Partial→ If No, Go to Question A2
- A2) Why was the interview not completed?
- [1] Respondent refused to participate
 - [2] Respondent too weak to answer questions
 - [3] Insufficient time available
 - [4] Respondent was uncooperative
 - [5] Family/Other persons interrupted interview
 - [6] Respondent cognitively impaired
 - [7] Other reason(s)_____
- A3) Do you feel that the respondent understood the questions?
- [1] Yes
 - [2] No
 - [88] Don't Know/Unsure
- A4) Do you feel that the respondent was cognitively capable of responding?
- [1] Yes
 - [2] No
 - [88] Don't Know/Unsure
- A5) In general, what was the respondent's attitude toward the interview?
- [1] Friendly and interested
 - [2] Cooperative but not particularly interested
 - [3] Impatient and restless
 - [4] Hostile



Go to the next column.

- A6) Did the interview seem tiring for the respondent?
- [1] Yes→ If Yes, Go to Question A7
 - [2] No→ If No, Go to Question A8
 - [88] Don't Know/Unsure→ If Don't Know/Unsure, Go to Question A8
- A7) Do you think that the respondent being tired limited the information you were able to collect during the interview?
- [1] Yes
 - [2] No
 - [88] Don't Know/Unsure
- A8) Did the respondent have a hearing difficulty?
- [1] Yes→ If Yes, Go to Question A9
 - [2] No→ If No, Go to Question A10
 - [88] Don't Know/Unsure→ If Don't Know/Unsure, Go to Question A10
- A9) Do you feel the respondent's hearing difficulty limited the information you were able to collect during the interview?
- [1] Yes
 - [2] No
 - [88] Don't Know/Unsure
- A10) Did the person who provided the answers have difficulty understanding you during the interview?
- [1] Yes→ If Yes, Go to Question A11
 - [2] No→ If No, Go to Question A12
 - [88] Don't Know/Unsure→ If Don't



Go to the next page.

**Know/
Unsure,
Go to
Question
A12**

A11) Do you feel the respondent's difficulty in understanding you limited the information you were able to collect during the interview?

- [1] Yes
- [2] No
- [88] Don't Know/Unsure

A12) Did you feel that the respondent thoroughly considered each question before answering?

- [1] Yes
- [2] No
- [88] Don't Know/Unsure

A13) Is this person appropriate for a follow-up interview via telephone?

- [1] Yes
- [2] No
- [88] Don't Know/Unsure

A14) How well do you think that you established a rapport (a connection, comfortable conversation, and a sense of ease) with the respondent?

- [1] Very well
- [2] Quite well
- [3] Somewhat well
- [4] Not well
- [88] Don't Know/Unsure

A15) Inside the respondent's home/apartment/unit, did you observe peeling or flaking paint?

A16) Inside the respondent's home/apartment/unit, did you observe evidence of pests (e.g., cockroaches,

rodents, etc.)?

- [1] Yes
- [2] No
- [88] Don't Know/Unsure

A17) Inside the respondent's home/apartment/unit, did you observe broken furniture or lamps?

- [1] Yes
- [2] No
- [88] Don't Know/Unsure

A18) Inside the respondent's home/apartment/unit, did you observe flooring in need of repair (e.g., torn carpet, broken tiles, split wood)?

- [1] Yes
- [2] No
- [88] Don't Know/Unsure

A19) Inside the respondent's home/apartment/unit, did you observe other tripping hazards (e.g., pathways not clear, throw rugs not secured, electrical cords in path)?

- [1] Yes
- [2] No
- [88] Don't Know/Unsure

A20) How cluttered was the room where the interview was held?

- [1] Not at all cluttered
- [2] Somewhat cluttered
- [3] Very cluttered
- [4] Could not see room

A21) How cluttered were the other rooms in the SP's home/apartment/unit?

- [1] Not at all cluttered
- [2] Somewhat cluttered
- [3] Very cluttered
- [4] Could not see room



Go to the next column.



Go to the next page.

A22) When standing in front of the respondent's home/building, and looking around in every direction, how much of the following did you see Litter, broken glass, or trash, on sidewalks and streets?

- [1] None
- [2] A little
- [3] Some
- [4] A lot
- [5] Could not observe

A23) When standing in front of the respondent's home/building, and looking around in every direction, how much of the following did you see graffiti on buildings and walls?

- [1] None
- [2] A little
- [3] Some
- [4] A lot
- [5] Could not observe

A24) When standing in front of the respondent's home/building, and looking around in every direction, how much of the following did you see vacant or deserted houses or storefronts?

- [1] None
- [2] A little
- [3] Some
- [4] A lot
- [5] Could not observe

A25) Standing in front of the respondent's home/building, did it have any broken or boarded up windows?

- [1] Yes
- [2] No
- [88] Don't Know/Unsure

A26) Standing in front of the respondent's home/building, did it have crumbling foundation or open holes?

- [1] Yes
- [2] No
- [88] Don't Know/Unsure

A27) Standing in front of the respondent's home/building, did it have missing bricks, siding, or other outside materials?

- [1] Yes
- [2] No
- [88] Don't Know/Unsure

A28) Standing in front of the respondent's home/building, did it have roof problems (e.g., missing material, sagging, or a hole in roof)?

- [1] Yes
- [2] No
- [88] Don't Know/Unsure

A29) Standing in front of the respondent's home/building, did it have Uneven walking surfaces or broken steps in the area leading to the home/building?

- [1] Yes
- [2] No
- [88] Don't Know/Unsure

A30) Standing in front of the respondent's home/building, did it have Continuous sidewalks in both directions?

- [1] Yes
- [2] No
- [88] Don't Know/Unsure

❖ SECTION B ❖

B1) Is there anything else that you would like to tell us about regarding your observations?

- [1] Yes → **If Yes, please explain below**
- [2] No



Thank you for completing the Interviewer Observations Questionnaire.

APPENDIX D

MORE THAN A MEAL

FOLLOW-UP TELEPHONE INTERVIEW

SURVEY INSTRUCTIONS

- Ask all the questions and record the answers using this booklet.
- You will sometimes be told to skip over some questions in this survey. When this happens, you will see an arrow with a note that tells you what question to answer next, like this:

[1] Yes

[2] No → **If No, Go to Question B12**

- You will sometimes see response items in capital letters that look like this:

[99] REFUSED

[88] DON'T KNOW

You do not read these response items.



Go to the next page.

IVWR: ENTER PARTICIPANT IDENTIFICATION

□□-□□□□

IVWR: ENTER DATE OF FOLLOW-UP INTERVIEW.

□□□□□□

Introduction

My name is (INTERVIEWER NAME) and I am calling from (PROGRAM NAME). We are following-up on a previous survey you completed regarding your health, community, and social relationships. By participating in this interview, the information you provide will be used to improve the health and nutrition services available to adults like yourself. This interview is expected to last less than 30 minutes.

Please be assured that any answers you give us will remain confidential and nothing you say will be connected with your name.

Do you have any questions at this time? Are you ready to begin?

I have a number of questions that I am going to ask you. Some of the questions that I will ask you next will be easy; others may be more difficult. They are all routine questions that we ask of everyone.

During this interview I want to be mindful of your time. In order to get through all of the questions as efficiently as possible, I will read you a list of possible responses and need you to pick just one. Sound good?



Go to the next page.

❖ SECTION A (SOCIAL SUPPORT) ❖

A1) Looking back over the last few months, how often do you have contact with friends or family? Is it...

- [1] Daily or almost daily
- [2] Once or twice a week
- [3] Once or twice a month
- [4] Less than once a month
- [99] REFUSED
- [88] DON'T KNOW

A2) Is there a family member, friend, or neighbor that you feel you can call on for help if you need it?

- [1] Yes
- [2] No
- [99] REFUSED
- [88] DON'T KNOW

A3) Do you have a guardian 911/Lifeline system in place?

- [1] Yes→ If Yes, Go to Question A4
- [2] No→ If No, Go to Question A5
- [99] REFUSED→ If Refused, Go to Question A5
- [88] DON'T KNOW→ If Don't Know, Go to Question A5

A4) Do you use it?

- [1] Yes
- [2] No
- [99] REFUSED
- [88] DON'T KNOW

A5) Because of a physical, mental, or emotional condition, do you sometimes need the help of another person with personal care needs, such as eating, bathing, dressing, or getting around inside the home?

- [1] Yes→ If Yes, Go to Question A6
- [2] No→ If No, Go to Question A7
- [99] REFUSED→ If Refused, Go to Question A7
- [88] DON'T KNOW→ If Don't Know, Go to Question A7

A6) What is that person or persons relationship to you?

[IWER: DO NOT READ, CHOOSE ALL THAT APPLY]

- [1] Spouse /Partner
- [2] Child/Child-in-Law
- [3] Grandchild
- [4] Other relative
- [5] Someone else
- [99] REFUSED
- [88] DON'T KNOW

A7) Do you live alone?

- [1] Yes
- [2] No
- [99] REFUSED
- [88] DON'T KNOW

A8) Has your living situation changed since we last talked to you?

- [1] Yes→ If Yes, Go to Question A9
- [2] No→ If No, Go to Question B1
- [99] REFUSED→ If Refused, Go to Question B1
- [88] DON'T KNOW→ If Don't Know, Go to Question B1



Go to the next column.



Go to the next page.

A9) How has your living situation changed?

[IWER: LISTEN TO RESPONDENT AND SELECT MOST APPROPRIATE RESPONSE]

- [1] Now live alone
- [2] Moved in with family
- [3] Family/friend/neighbor moved in with me
- [4] Household member has moved out
- [5] Now have paid help

❖ SECTION B (HEALTH AND HEALTHCARE UTILIZATION) ❖

Now I'd like to ask you some questions about your health.

B1) Would you say that in general your health is...

- [1] Excellent
- [2] Very good
- [3] Good
- [4] Fair
- [5] Poor
- [99] REFUSED
- [88] DON'T KNOW

B2) Do you currently have a chronic illness? Examples of chronic illness include heart disease, stroke, cancer, diabetes and arthritis.

- [1] Yes→ If Yes, Go to Question B3
- [2] No→ If No, Go to Question B5
- [99] REFUSED→ If Refused, Go to Question B5
- [88] DON'T KNOW→ If Don't Know, Go to Question B5

B3) Does your chronic illness impact your ability to leave home?

- [1] Yes
- [2] No
- [99] REFUSED
- [88] DON'T KNOW

B4) Does your chronic illness impact your ability to eat regular meals?

- [1] Yes
- [2] No
- [99] REFUSED
- [88] DON'T KNOW

B5) Have you had an overnight hospital stay within the last 3 months, that is since **[IVWR: enter date 3 months prior]**. By hospital stay, we mean a time when you stayed at least one night in the hospital.

- [1] Yes→ If Yes, Go to Question B6
- [2] No→ If No, Go to Question B8
- [99] REFUSED→ If Refused, Go to Question B8
- [88] DON'T KNOW→ If Don't Know, Go to Question B8

B6) How many separate overnight hospital stays have you had in the last 3 months?

_____ number of stays



Go to the next column.



Go to the next page.

B7) What was the main reason for your hospitalization [**IWER: LISTEN TO PARTICIPANT OR PROXY AND SELECT MOST APPROPRIATE RESPONSE**]?

- [1] Heart disease
- [2] Respiratory diseases (e.g., emphysema, pneumonia or asthma)
- [3] Kidney diseases
- [4] Hypertension, sometimes called high blood pressure
- [5] Diabetes or high sugar in the blood
- [6] Mental health conditions (e.g., dementia or depression)
- [7] Nausea, diarrhea or other bowel problems
- [8] Stroke
- [9] Bone related disease
- [10] Bone fracture
- [11] Joint (or hip) replacement
- [12] Anemia or iron-poor blood
- [13] Cancer
- [14] Accident or fall
- [15] Other _____
- [99] REFUSED
- [88] DON'T KNOW

B8) In the last 3 months, have you spent any time in a long-term care facility such as a nursing home?

- [1] Yes→ If Yes, Go to Question B9
- [2] No→ If No, Go to Question B10
- [99] REFUSED→ If Refused, Go to Question B10
- [88] DON'T KNOW→ If Don't Know, Go to Question B10

B9) How long did you stay in the long-term care facility?

_____ number of days

B10) Is there a doctor that you think of as your regular doctor, that is, a primary care doctor you usually go to when you are sick and need advice about your health?

- [1] Yes→ If Yes, Go to Question B11
- [2] No→ If No, Go to Question B12
- [99] REFUSED→ If Refused, Go to Question B12
- [88] DON'T KNOW→ If Don't Know, Go to Question B12

B11) Have you seen your primary care doctor/ a doctor within the last 3 months? That is, since [**IVWR: enter date 3 months prior**].

- [1] Yes
- [2] No
- [99] REFUSED
- [88] DON'T KNOW

B12) Do you take 3 or more prescribed or over-the-counter drugs each day?

- [1] Yes→ If Yes, Go to Question B13
- [2] No→ If No, Go to Question B14
- [99] REFUSED→ If Refused, Go to Question B14
- [88] DON'T KNOW→ If Don't Know, Go to Question B14

B13) How many prescribed or over the counter drugs do you take each day?
_____ number of drugs

B14) Have you lost or gained 10 pounds in the last 3 months without wanting to?

- [1] Yes
- [2] No
- [99] REFUSED
- [88] DON'T KNOW



Go to the next column.



Go to the next page.

❖ SECTION C (FALLS) ❖

These next few questions are about falling down. By falling down we mean any fall, slip, or trip in which you lose your balance and land on the floor or ground or at a lower level.

- C1) In the last month, have you fallen down?
[1] Yes→ If Yes, Go to Question C2
[2] No→ If No, Go to Question C3
[99] REFUSED→ If Refused, Go to Question C3
[88] DON'T KNOW→ If Don't Know, Go to Question C3
- C2) How many times have you fallen down in the last month?
_____ number of falls
- C3) In the last month, did you worry about falling down?
[1] Yes→ If Yes, Go to Question C4
[2] No→ If No, Go to Question D1
[99] REFUSED→ If Refused, Go to Question D1
[88] DON'T KNOW→ If Don't Know, Go to Question D1
- C4) In the last month, did this worry ever limit your activities?
[1] Yes
[2] No
[99] REFUSED
[88] DON'T KNOW

❖ SECTION D ❖

Next, please indicate how often each of the statements below is descriptive of you. Never, rarely, sometimes, often?

- D1) How often do you lack companionship?
[1] Never
[2] Rarely
[3] Sometimes
[4] Often
[99] REFUSED
[88] DON'T KNOW
- D2) How often do you feel safe in your house?
[1] Never
[2] Rarely
[3] Sometimes
[4] Often
[99] REFUSED
[88] DON'T KNOW
- D3) How often do you feel left out?
[1] Never
[2] Rarely
[3] Sometimes
[4] Often
[99] REFUSED
[88] DON'T KNOW
- D4) How often do you feel isolated from others?
[1] Never
[2] Rarely
[3] Sometimes
[4] Often
[99] REFUSED
[88] DON'T KNOW



Go to the next column.



Go to the next page.

D5) How often do you worry about being able to remain in your home?

- [1] Never
- [2] Rarely
- [3] Sometimes
- [4] Often
- [99] REFUSED
- [88] DON'T KNOW

❖ SECTION E (QUALITY OF LIFE) ❖

You are doing great! We really appreciate you taking the time to answer our questions. The next few questions focus on your feelings over the last month.

E1) Over the last month, how often have you had little interest or pleasure in doing things? Would you say...

- [1] Not at all
- [2] Several days
- [3] More than half the days
- [4] Nearly every day
- [99] REFUSED
- [88] DON'T KNOW

E2) Over the last month, how often have you felt down, depressed, or hopeless? Would you say...

- [1] Not at all
- [2] Several days
- [3] More than half the days
- [4] Nearly every day
- [99] REFUSED
- [88] DON'T KNOW

E3) Over the last month, how often have you felt nervous, anxious, or on edge? Would you say...

- [1] Not at all
- [2] Several days
- [3] More than half the days
- [4] Nearly every day
- [99] REFUSED
- [88] DON'T KNOW

E4) Over the last month, how often have you been unable to stop or control worrying? Would you say...

- [1] Not at all
- [2] Several days
- [3] More than half the days
- [4] Nearly every day
- [99] REFUSED
- [88] DON'T KNOW

Now, please think about your activities in the past 3 months.

E5) Do you participate in any groups, such as a senior center, social or work group, religious-connected group, self-help group, or charity, public service, or community group?

- [1] Yes
- [2] No
- [99] REFUSED
- [88] DON'T KNOW

E6) About how often do you go to religious meetings or services?

- [1] Never or almost never
- [2] Once or twice a year
- [3] Every few months
- [4] Once or twice a month
- [5] Once a week
- [6] More than once a week
- [99] REFUSED
- [88] DON'T KNOW



Go to the next column.



Go to the next page.

- E7) How often do you eat alone?
- [1] Every meal
 - [2] One meal a day
 - [3] Once or twice a week
 - [4] Once or twice a month
 - [5] Never
 - [99] REFUSED
 - [88] DON'T KNOW

SECOND HALF FOR THOSE RECEIVING
MEALS, ONLY

*I'd like to ask you some questions now
about your home-delivered meals program.*

- F1) Do services received from the home-delivered meals program help you to eat healthier foods?
- [1] Yes
 - [2] No
 - [99] REFUSED
 - [88] DON'T KNOW
- F2) Do services received from the home-delivered meals program help you to achieve or maintain a healthy weight?
- [1] Yes
 - [2] No
 - [99] REFUSED
 - [88] DON'T KNOW
- F3) Do services received from the home-delivered meals program help you improve your health?
- [1] Yes
 - [2] No
 - [99] REFUSED
 - [88] DON'T KNOW

- F4) **[IVWR: If they said they had a chronic illness in Question B2, then ask]** Do the meals you receive through the program impact your chronic illness?
- [1] Yes → If Yes, Go to Question F5
 - [2] No → If No, Go to Question F6
 - [99] REFUSED → If Refused, Go to Question F6
 - [88] DON'T KNOW → If Don't Know, Go to Question F6

- F5) If yes, how?
-

- F6) Do services received from the home-delivered meals program help you feel better?
- [1] Yes
 - [2] No
 - [99] REFUSED
 - [88] DON'T KNOW
- F7) Do services received from the home-delivered meals program help you continue to live at home?
- [1] Yes
 - [2] No
 - [99] REFUSED
 - [88] DON'T KNOW
- F8) Do services received from the home-delivered meals program help you feel less lonely?
- [1] Yes
 - [2] No
 - [99] REFUSED
 - [88] DON'T KNOW



Go to the next column.



Go to the next page.

When answering the next few questions, think about what it would be like if you did not receive home-delivered meals.

F9) If you did not receive home-delivered meals, would you say “I could manage my daily meals okay on my own?”

- [1] Yes
- [2] No
- [99] REFUSED
- [88] DON'T KNOW

F10) If you did not receive home-delivered meals, would you say “I could get help with my daily meals from a family member or a friend?”

- [1] Yes
- [2] No
- [99] REFUSED
- [88] DON'T KNOW

F11) If you did not receive home-delivered meals, would you say “It would be hard to stay where I am living now?”

- [1] Yes
- [2] No
- [99] REFUSED
- [88] DON'T KNOW

F12) If you did not receive home-delivered meals, would you say “I would eat less well than I do now?”

- [1] Yes
- [2] No
- [99] REFUSED
- [88] DON'T KNOW

F13) If you did not receive home-delivered meals, would you say “I would have little daily contact with people?”

- [1] Yes
- [2] No
- [99] REFUSED
- [88] DON'T KNOW

F14) If you did not receive home-delivered meals, would you say “I would have to go to live somewhere else?”

- [1] Yes
- [2] No
- [99] REFUSED
- [88] DON'T KNOW

F15) If you did not receive home-delivered meals, would you say “I would feel neglected?”

- [1] Yes
- [2] No
- [99] REFUSED
- [88] DON'T KNOW

F16) Does having home delivered meals help you to feel safe in your home?

- [1] Yes→ **If Yes, Go to Question E24**
- [2] No→ **If No, Go to Question E25**
- [99] REFUSED→ **If Refused, Go to Question E25**
- [88] DON'T KNOW→ **If Don't Know, Go to Question E25**

F17) **IF YES**, in what ways does it make you feel safe?

IF NO: RECORD ONLY VOLUNTEERED COMMENTS. DO NOT ASK.



Go to the next column.



Go to the next page.

- F18) Have you noticed any changes in your health since you started receiving home-delivered meals?
- [1] Yes→ If Yes, Go to Question F19
 - [2] No→ If No, Go to Question F20
 - [99] REFUSED→ If Refused, Go to Question F20
 - [88] DON'T KNOW→ If Don't Know, Go to Question F21

F19) **IF YES, PROBE** what changes have you noticed?

- F20) Overall, how would you rate the quality of [NAME OF HDM PROGRAM]? Would you say it is...?
- [1] Excellent
 - [2] Good
 - [3] Fair
 - [4] Poor
 - [99] REFUSED
 - [88] DON'T KNOW

- F21) Would you recommend the [NAME OF HDM PROGRAM] to others?
- [1] Yes→ If Yes, Go to Question F22
 - [2] No→ If No, Go to Question F23
 - [99] REFUSED→ If Refused, Go to Question F24
 - [88] DON'T KNOW→ If Don't Know, Go to Question F24

F22) **IF YES, PROBE** why would you recommend this program to others?

F23) **IF NO, PROBE** why would you not recommend this program to others?

F24) If you could change anything about the [NAME OF HDM PROGRAM] what would you change?

Thank you so very much for participating in this interview. Your assistance is greatly appreciated.



Go to the next column.