# A review and comparison of current service models for Title III funded home-delivered meals

***Prepared for the Metropolitan Area Agency on Aging, Inc.***

***by Wilder Research***

**APRIL 2012**

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# Summary

## *Background*

Through Title III funding, the Metropolitan Area Agency on Aging supports several local organizations that provide home-delivered meals to people in need of nutritional support. Title III funds have specific eligibility requirements for the recipients, as well as detailed requirements for the content of the meals, aimed at providing the greatest nutritional benefit to those in greatest need.

In 2011, these providers delivered more than 167,000 meals to 1,472 clients, at a total expenditure of about $1.3 million.

Wilder Research examined the effectiveness of varied approaches to providing the home-delivered meals, using the following methods:

- A review of national research on current and emerging models for home-delivered meals
- Description of consumer demographics
- In-depth interviews with service provider organizations
- Interviews with paid and volunteer meal delivery personnel
- Interviews with a representative sample of consumers
- Analysis of unit costs

### Review of research: Innovations and trends in the provision of home-delivered meals

The research literature describes two primary delivery models for Home-Delivered Meals (HDMs) – the hot meal delivered daily and the frozen meal delivered weekly (or twice weekly). The traditional home-delivered meal has been a hot meal delivered at lunchtime by a volunteer driver. In addition, there are a variety of service blends, including a combination of hot, chilled and frozen choices.

A review of existing research reveals some concerns that changing the daily hot meal delivery model may negatively affect the volunteer base supporting many current models and reduce the opportunity for "safety checks" by volunteers.

In the literature, proponents of daily hot meal delivery argue that the daily check-in serves several functions, including (1) verification of well-being, often by meal deliverers who are trained in identifying and addressing health emergencies, (2) social interaction, and (3) connections to the outside world, including services or other community activities, via the meal deliverer. Others have noted that some elderly people are unable to heat a frozen meal, could be placed at risk by handling a hot meal out of the microwave, or may not have a microwave or other means of heating the meal.

Proponents of frozen HDM delivery emphasize that the options of hot daily meals or a daily telephone check-in are available upon request in many programs. Kretser and colleagues found that the daily telephone call "sufficiently met the social needs of the homebound," and the results of a Cornell University study concluded that "the voluntary change from a five-day to two-day delivery does not appear to have a substantial impact on senior isolation." Frozen meals have become especially popular in rural areas, where distance limits the feasibility of daily meal delivery.

The most common justifications for frozen delivery of HDMs relate to costs and food safety concerns. Because it is less frequent, frozen meal delivery reduces transportation and staffing costs while expanding the feasibility of providing multiple entrée choices. In addition, as Balsam and Carlin explain, "Interest in frozen meals has been increasing because federal and state officials have expressed concern about the potential for growth of pathogenic organisms in foods improperly held at hazardous temperatures." Keeping foods at safe temperatures during the course of delivery is difficult and frequently unsuccessful, leading to the risk of foodborne illnesses for participants, whose age and nutritional status make them more vulnerable to such illnesses.

Finally, an additional factor in the current home-delivered meal environment is the growing for-profit competition to provide HDM services from organizations like Mom's Meals. Mom's Meals is an Iowa-based provider serving more than 30 states that prepares, packages, and ships, via FedEx, fresh meals directly to a client's doorstep at any address in the contiguous United States. According to the organization's advertising, pricing for meals under state-sponsored programs is typically $5-$8 per meal (delivery included). The additional competition has increased the pressure on existing HDM programs to devise innovative strategies to maximize customer satisfaction despite tight budgets.

## Profile of current Title III HDM clients in the Twin Cities area

The three current Title III HDM providers serve three distinct populations.

Presbyterian Homes serves the youngest population, with an average age just under 76. Two-thirds are female (slightly more than the other providers) and only three-fifths are

white. Presbyterian Homes serves a sizable population of Asians (almost one-third of their clients) and more Hispanics than the other two providers (5%). Four-fifths of Presbyterian Homes clients of color (83%) have incomes below the poverty line, and 85 percent of all Presbyterian Homes clients have incomes below 200 percent of the poverty line.

Scott-Carver-Dakota CAP (CAP) serves an older population of primarily white individuals who are less likely than the other groups to live below the poverty line. The average age of CAP clients is over 80, and 76 percent of CAP clients are over the age of 75. Ninety-nine percent of CAP clients are white, and while relatively few CAP clients live below the poverty line (12%), three-quarters (74%) have incomes below 200 percent of the poverty line. The racial/ethnic homogeneity and relatively high incomes of CAP clients is likely tied to their more suburban service area.

Volunteers of America (VOA) employs six subcontractors, and their client profiles appear to be midrange between the other two providers. VOA clients are on average about 78 years old with incomes below 200 percent of the poverty line. Like other providers, VOA clients are predominantly white, but unlike the other providers, VOA serves a substantial population of African Americans (20%) in addition to a small group of Asians (5%). Nearly all VOA clients of color are also low-income: 75 percent have incomes below the poverty line and 97 percent below 200 percent of the poverty line.

Overall, nearly two-thirds (63%) of home-delivered meal recipients for all three providers were at high nutritional risk, and another quarter (24%) were at medium nutritional risk. Presbyterian Homes clients were at highest nutritional risk, with 77 percent of clients at high risk. Nearly three-fifths (58%) of VOA clients and two-fifths (41%) of CAP clients were at high nutritional risk during the study period.

The majority of clients (53%) reported being able to complete all of the Activities of Daily Living (walking, bathing, eating, dressing, etc.) without help. Presbyterian Homes clients are most likely to require assistance with ADLs, with 55 percent reporting a need for help with at least one ADL. Most clients (four-fifths) receive help with at least one Instrumental Activity of Daily Living (such as housekeeping, shopping, or laundry). About one-third had been hospitalized for at least one night in the past year, and 27 percent were on a special diet.

## Current local service models and viability

The HDM providers currently funded by the Metropolitan Area Agency on Aging employ two main service models: 1) hot meals with limited meal choices delivered all or most weekdays by volunteer drivers, or 2) frozen meals with expanded meal choices delivered once a week by paid drivers. Most of the programs blend these two models to some degree.

The traditional hot meal delivered daily on weekdays is the basic model used by all but one of the HDM providers currently funded by MAAA. However, variations within this model include options for frozen meals, some flexibility in delivery schedules, and more choice in the number of meals received. Several programs recently began to offer frozen meals delivered once or twice a week. The frozen meals provided by these hot meal programs typically do not give clients additional meal choices.

Most programs allow consumers to choose the number of meals (within Title III program guidelines) they wish to receive each week, as well as some flexibility in delivery schedules. Consumers can decide which days of the week to have their meals delivered.

One program, Presbyterian Homes, primarily uses frozen meals delivered once a week by paid drivers. This program began in 2009, and offers clients 75 frozen entrée choices, as well as the ability to order a combination of hot and frozen meals each week. Clients can also choose a pre-set menu of frozen meals that rotates on a five-week schedule. When the program started, paid drivers delivered the frozen meals; now the program is experimenting with using volunteers to deliver some of its once-a-week frozen meals.

The Presbyterian Homes meal program also offers daily hot meal delivery with a pre-set menu, similar to the traditional hot meals program. Consumers can order a combination of hot and frozen meals to match the needs identified in their eligibility assessment. Hot meal choices are limited to alternatives available within the pre-set menus.

All providers report that they do whatever they can to respond to consumers' individual preferences and are able to accommodate the majority of requests for substitutions in the main entrée and items in the cold bag (for example, juice instead of milk, white vs. whole wheat bread, fruit and dessert substitutions).

All of the meal models provide meals on the weekends and holidays for those who need them. Weekend meals are often delivered cold or frozen, one or two days before the weekend or holiday.

Home-delivered meal providers use a mix of volunteer and paid delivery drivers.

- SCD CAP, CEAP, TRUST, and NE Dinner Bell programs rely entirely on volunteer drivers.

- Presbyterian Homes and North Minneapolis programs employ paid drivers for most of their meal routes. They use volunteer drivers for the rest of their meal deliveries. CES employs two paid delivery drivers; the rest are volunteers.

- JFCS and the VOA-Minnesota ethnic meal programs use only paid drivers.

Virtually all of the providers reported that keeping their program financially stable is their most pressing challenge. They described a combination of factors that make it increasingly difficult for them to balance their program budgets:

- Providers report that HDM programs are expensive to operate. They particularly cite expenses such as the cost of food and equipment upkeep (delivery containers and bags, refrigeration equipment). (See the full report for an overview of actual costs reported by providers.)
- The meal programs place strong emphasis on fresh fruits and vegetables, but providers point out that these kinds of foods add costs to the meals. In addition, the overall cost of food has risen in recent years.
- Providers perceive that reimbursements/allotments for both Title III and waivered services have been reduced in recent years while the nutritional regulations and documentation required of programs that receive these funds have become increasingly detailed and add to program costs.
- In some programs, providers report that consumers' donations for their Title III meals are smaller than in previous years.
- Providers also report that foundation gifts and other donations are generally down in recent years and new grants are more difficult to obtain.

Programs have responded to their current financial circumstances in various ways. Some are dipping into their reserves to make ends meet; some have cut paid staff positions and/or hours. Several providers say they are devoting more time to fundraising. In addition, providers say they continually work to obtain the best values in food prices and catering services without sacrificing the quality of the meals.

Several HDM programs, including some that offer frozen meal options, view commercial meal providers as viable competitors. They have anecdotal evidence of their clients switching to a commercial provider, most often Mom's Meals. However, the providers also observed that at least some of these clients have since returned to their programs.

A number of providers said that transportation costs can be an impediment to recruiting volunteer drivers, who are not reimbursed for their mileage when delivering meals. Although volunteers can claim mileage as an income tax deduction ($.14 per mile), the amount does not come close to the actual cost of operating their vehicles.

All of the HDM providers report that they make sure meals recipients receive information about additional community services available to help them maintain their current living

arrangements, including, but not limited to, services that may be provided by their own agencies. Several programs also specifically mentioned that they inform their meals clients about county supports and help available through the Senior LinkAge Line®.

None of the HDM providers indicated that they are planning to change their primary program models in the near future. They said, rather, that they will continue to seek ways to strengthen their current programs. Several of the traditional daily weekday hot meals providers said that they are open to considering developing more frozen meal and weekly delivery options, as well as providing ethnic meals. All of the providers that currently use volunteer delivery drivers said they are committed to continuing and strengthening this component of their program.

### Providers' unit costs and consumers' contributions for home-delivered meals

With such a diverse combination of provider operations, client populations served, specialty meal types, delivery methods, and organizational settings for these meal programs, it is difficult to carry out completely objective cost comparisons across programs.

Based on analysis of available financial data from each provider, the unit cost per meal ranges from a low of $7.22 (for North Minneapolis Meals on Wheels) to a high of $10.50 (for kosher meals supplied by Jewish Family and Children's Services). The average among all providers is $8.60 per meal. The average participant contribution across providers is $2.09, leading to an average net cost (after participant contribution) of $6.51.

Based on available data, about half the unit cost per meal ($4.14) covers the expense of the meal itself, while 36 percent ($3.12) goes to personnel and staffing, 11 percent ($0.94) to overhead, and 5 percent ($0.41) to other costs. VOA and Jewish Family and Children's Services pay higher-than-average costs for the contents of their ethnically appropriate (Vietnamese and kosher) meals, while Northeast Dinner Bell and Scott-Carver-Dakota CAP have higher personnel/staffing costs.

### How volunteer and paid drivers understand their role and the benefits to consumers, including safety checks

Paid drivers typically deliver to 20 or 30 clients each day, compared to volunteer drivers who typically serve between six and 10 clients each time they work.

Both paid and volunteer drivers are instructed to be alert to and respond appropriately to safety concerns. There appears to be little difference between paid and volunteer drivers regarding this activity, except that such checks occur more often for those who receive hot meals daily on weekdays.

Paid and volunteer drivers appear to encounter reportable problems with similar frequency. About one-quarter say they found a situation that required some type of attention within the past two months. Based on provider interviews, it does not appear that systematic records are kept of such events, but it is clear that follow-up occurs in response to each report.

When drivers were asked if they had ever been the first person to discover a recipient experiencing an emergency or crisis, three of the 28 volunteer drivers (11%) compared to four of the eight paid drivers (50%) reported such an experience. Such a difference is not unexpected, given the substantially larger number of client contacts among paid drivers.

Virtually all delivery personnel recognize that their primary responsibility is to deliver nutritious meals in a timely fashion and that this work must be done efficiently because there are multiple people to serve on each route. In general, deeper relationships that offer more personal support and encouragement tend to be the exception rather than the rule.

The comments of volunteer delivery personnel clearly reflect the importance they place on giving back to the community and attending to the needs of others. Volunteering as a home-delivered meal driver provides many adults, many of retirement age, with several ingredients that are a key to vital aging, including an easy entry point for community involvement, a challenging task that requires physical activity, companionship with their peers as well as some meals recipients, a sense of self-efficacy, and general good feelings regarding their role in the community.

## *Evidence of enhanced nutrition, greater independence and social contact for meal recipients*

Telephone interviews with 209 home-delivered meal consumers included 88 served by Presbyterian Homes, 52 served by Scott-Carver-Dakota CAP, and 69 served by Volunteers of America and its subcontractors. Of them:

Eighty percent of respondents receive help with housekeeping, laundry, grocery shopping or heavy household chores. Just over one-third (36%) get help with meals from sources other than these home-delivered meals providers, and just over one-quarter (27%) get help with personal care like bathing, dressing or taking medications.

The majority of respondents (59%) across all meal providers described their health as "good" or "excellent". Only 29 percent of respondents described their health as "fair," and 11 percent said their health was "poor." About one-third of respondents had been hospitalized for at least one night in the last year, and 27 percent were on some kind of special diet.

### Overall nutritional impact

Overall, the home-delivered meals' effect on the nutrition of participants appears overwhelmingly positive. Satisfaction with the meals was very high, with an average of 87 percent of respondents reporting that their meals were "good" or "excellent" in variety, nutritional value, taste, and appearance. As a result, 83 percent said they had eaten all or most of their most recent home-delivered meal. Three-quarters said they would eat less well without their meal service, and one-third had noticed a change in their health since starting to receive home-delivered meals. Reported health changes include increased food and nutrient intake, beneficial weight effects (gain, loss, or stabilization), and other specific health outcomes like improved blood pressure and increased energy.

### Impact on clients in greatest need

Home-delivered meal programs place special emphasis on targeting those in greatest need, some of whom are represented by clients with low incomes and poor health. In general, these groups reported stronger health outcomes than others.

Low-income clients were very satisfied with their meals, and tended to rate the meals (especially meal taste) more favorably than clients with incomes above 200 percent of the poverty line. While low-income clients were less likely than higher-income clients to have eaten all of their most recent home-delivered meal, they were also more likely to have noticed a change in their health since starting to receive home-delivered meals. It seems that these clients might have smaller appetites, but the health impacts of the meal programs were especially apparent among them.

The results for clients in poor health are also encouraging but slightly less so. Clients in poor health were less likely to have eaten all of their most recent home-delivered meal, and in general, tended to rate their home-delivered meals less favorably than those in better health. Nonetheless, clients in poor health were more likely than others to have noticed a change in their health since starting to receive home-delivered meals, suggesting that the impact of the meals was positive despite their lower ratings of the meals.

### Variation in outcomes by meal type

Hot meal recipients and frozen meal recipients had eaten roughly the same portion of their most recent home-delivered meal at the time of the interview, but hot meal recipients who did not eat the entire meal were more likely to have saved a portion of the meal to eat later, suggesting that hot meal recipients might have eaten a larger portion of the meal in the end.

Meal satisfaction was at least somewhat higher among hot meal recipients than among frozen meal recipients across measures of meal satisfaction, though this difference was only statistically significant in the case of clients' satisfaction with nutritional value. The largest differences in satisfaction occurred among older clients, higher-income clients, and clients at low or medium nutritional risk. In fact, clients with lower incomes and high nutritional risk tended to rate hot meals and frozen meals comparably. Among these target groups, there were very few significant differences by meal type. The same was true of those clients who said they would eat less well without the home-delivered meal service: while hot meal clients were significantly more likely to say they would eat less well without the service, this pattern was strongest among those in relatively better health.

As a whole, these findings tend to indicate that hot meals may lead to slightly stronger nutritional outcomes, to the extent that we can measure them. However, it is important to note that many of these differences in outcomes are minimal or nonexistent among the targeted clients with low incomes and poor health. Furthermore, younger clients tended to rate hot and frozen programs and their nutritional outcomes similarly. The satisfaction ratings between the meal types might therefore equalize over time, as today's younger clients age and their preferences become dominant in the client population. As a result, we conclude that the decision to shift resources toward frozen meals has had little or no negative impact on client nutrition.

### Independent living

Just over one-quarter of respondents said they would be unable to manage their meals on their own or get help with their meals from a family or friend if they did not have the meal service. Nearly half said it would be hard to stay where they live now without the meal service, and one-fifth said they would have to go live somewhere else. In general, clients who are female, older, white, low-income, and less healthy were more likely than their counterparts to indicate that the meal service enables them to remain in their homes or continue eating regularly.

Meal type had no significant influence overall on independent living, and when controlling for demographics and health characteristics, the differences between hot and frozen meals were mixed and inconclusive. We conclude, therefore, that hot and frozen meals contribute similarly to clients' ability to continue managing their meals and living independently.

### Social contact and check-ins

About one-third of clients said they rely on their home-delivered meal service for much of their social contact, as 29 percent said they have contact with friends or family members twice a week or less and 38 percent said they would have little daily contact with people

if not for the meal service. This was especially true for clients in poor health. Hot meal recipients were significantly more likely to say they would have little daily contact without the meal service (which is unsurprising because frozen meal recipients do not have daily contact with their meal deliverers).

Clients generally described their interactions with meal deliverers quite positively. Ninety-nine percent of clients said their deliverers treat them with respect and are courteous and friendly. Most (89 percent) also said that their meal deliverers take the time to talk with them. Due to the high levels of agreement on these measures, there are few meaningful differences by client characteristics or meal delivery type.

The interaction between client and meal deliverer at the point of delivery is also valued for the opportunity to check on the client's well-being. Two-thirds of clients said that receiving home-delivered meals contributes to their safety, and one-quarter of those mentioned the importance of the social contact or welfare check when asked how the service contributes to their safety. Frozen meal recipients and hot meal recipients were equally likely to say that receiving home-delivered meals contributes to their safety, but hot meal recipients and clients with volunteer drivers were more likely to mention the importance of the safety check when asked how receiving home-delivered meals contributes to their safety.

These findings indicate that hot meal recipients and frozen meal recipients were equally likely to have positive experiences with their meal deliverers and to feel that receiving home-delivered meals contributes to their safety. Hot meal recipients were, however, more likely to mention the importance of the social contact or weekday check-in as it contributes to their safety, and were more likely to say they would have little weekday contact without the meal service. It appears, therefore, that hot meal recipients rely more on their meal service for their social contact and many of them perceive the impact of that contact on their safety.

### Overall client satisfaction with meal programs

Clients were very satisfied with their home-delivered meal programs. They overwhelmingly agreed that staff are courteous, friendly, respectful, easy to contact, and responsive to questions and concerns. Even the reliability of meal delivery, the customer service measure with the lowest satisfaction, was rated favorably by 96 percent of respondents.

Nearly all clients said they would recommend their HDM program to others, and nine out of 10 rated the overall quality of the program as "excellent" or "good." Respondents most commonly said they would recommend their program because of improved nutritional intake or outcomes (33%) or for the convenience and safety of avoiding cooking or leaving

the house (33%). Nearly half of clients could not think of anything they would change about their meal program. Of those who suggested changes, most gave specific requests for food types or suggestions for improved food preparation.

Program quality ratings were similarly positive among all levels of health, demographic groups, and meal/delivery types. The most popular program strengths (improved nutritional intake or outcomes and the convenience of receiving prepared meals) were quite similar across providers and meal types, but hot meal recipients were more likely to mention the importance of the safety check-in, the reduced need to cook and use the stove, and the dependability and reliability of the service. A few clients of Presbyterian Homes specifically mentioned changes in the program in their comments, but there was a fairly close balance of positive and negative reactions to those changes.

## *Key findings at a glance*

- Movement toward more diverse models of service provision has not had serious or negative consequences for consumers.
- Across the board, service models have tended to become more blended between hot and frozen meal delivery and between paid and volunteer drivers.
- Service cost will remain important as for-profit providers expand home-delivered meal offerings that meet Title III nutritional requirements.
- Future consumers will likely want and be well served by a more diverse range of choices in delivery model and meal type.
- Volunteers benefit from the vital involvement features of home meal delivery.

# Introduction

In September 2010 the Metropolitan Area Agency on Aging completed its competitive bid process to identify providers of congregate dining and home-delivered meals services for 2011 through 2013. The Board of Directors selected three providers, including one that would expand a new model it had piloted in 2009 and 2010 that gave home-delivered meal recipients greater choice of entrée, options for delivery and a selection of frozen meals. The Board's action occurred after an extensive policy development and community input process that took place over an 18-month period prior to commencement of procurement activities and that followed MAAA's established applicant review process.[1]

MAAA's newly developed funding priorities aligned with the Minnesota Board on Aging's nutrition priorities established for 2009-2014 and placed a much greater emphasis than in past procurement rounds on consumer choice. The subsequent funding decision resulted in the selection of three organizations, expanded support for Presbyterian Homes and Services, and ended funding for Human Services, Inc. and the Ramsey County Consortium (a group of 10 organizations that had provided home-delivered meals to older adults for many years under a previous funding agreement with MAAA).

This study is an outgrowth of MAAA's decision to shift funding from providers offering traditional daily delivery of hot meals to include at least one provider that would offer a new choice model that included an option for weekly delivery of frozen meals. The Board of Directors thought it was important to conduct a valid, objective and unbiased evaluation of all three service providers it had selected to receive federal Older Americans Act and state nutrition funds. In combination the three providers – Presbyterian Homes and Services, Volunteers of America-Minnesota, and Scott-Carver-Dakota CAP Agency – offer a variety of service options. MAAA was interested in learning if and how new service strategies might be effective in today's environment and wanted to ensure that they would be able to meet changing preferences among consumers.

Through a competitive bid process, Wilder Research was selected in the spring of 2011 to conduct the study and given access to all necessary data sources including the federally supported database (NAPIS) used to store information about all home-delivered meal participants. The study was to be broad in scope and include an examination of issues related to client preference, food quality, and the benefits associated with both paid and volunteer delivery workers. The board was also interested in assessing unit costs, examining consumer perceptions of value and outcomes associated with traditional and new meal delivery models, and reviewing other home-delivered meal strategies in communities throughout the U.S.

[1] See Appendix IV for more information on the procurement process.

# Study approach and methods

In order to gain a comprehensive view of the current provider organizations, service strategies and consumer response to the Title III home-delivered meal programs, Wilder Research employed a multisource and multi-method research strategy which includes:

1. A history and environmental scan of home-delivered meal programs nationwide based on a comprehensive literature review and Internet search with particular attention to current service models as well as new and promising strategies

2. A description of current demographics, functional status, nutritional risk, and related characteristics of the local consumer population based on the National Aging Program Information Services (NAPIS) database

3. A description of 2011 MAAA-funded service models and strategies based on key informant interviews with current MAAA Title III home-delivered meal service providers

4. A description of the opinions and observations of service delivery personnel (including both paid and volunteer drivers) regarding their role in serving and establishing beneficial relationships with consumers

   — Consumer feedback from a randomly selected sample of current home-delivered meal recipients representing all the MAAA-funded service providers, describing their opinions and observations regarding provider practices, perceived benefits of services, satisfaction with meal quality and meal type (including both hot and frozen selections), and recommendations for program improvement[2]

5. An analysis of unit costs (price per meal) based on 2011 budget figures provided by each agency

The study, originally expected to be complete in late fall of 2011 encountered several challenges related to data availability that delayed the completion of the study until February, 2012.

[2] See Appendix V for additional information and a copy of the survey instrument.

# History of senior nutrition programs

The 1965 Older Americans Act (OAA), inspired by concerns about the lack of community and nutrition services for the nation's elderly, established the Administration on Aging and laid the groundwork for funding the community planning and social services to be administered through a network of state and local agencies (http://www.aoa.gov/AoARoot/AoA_Programs). Aimed specifically at improving the nutrition of American elders, the OAA Nutrition Program identified a three-part purpose outlining the nutritional and social ambitions of the program:

*The purpose of the OAA Nutrition Program (OAA Section 330) is to:*

1. *Reduce hunger and food insecurity*
2. *Promote socialization of older individuals*
3. *Promote the health and well-being of older individuals and delay adverse health conditions through access to nutrition and other disease prevention and health promotion services.*

(http://www.aoa.gov/aoaroot/aoa_programs/hcltc/nutrition_services)

Nutrition services began in 1972 with Congregate Nutrition Services which, in addition to health and nutrition goals, also sought to increase social contact and reduce isolation among seniors. This program was expanded in 1978 to include Home-Delivered Nutrition Services as a means of delivering meals and other nutrition services to the homebound elderly. These other nutrition services, including nutrition assessment, education, and counseling for participants in some states, combined with meal services to promote greater independence for the elderly, delay institutionalization, and reduce caregiver burdens.[3]

## *Senior nutrition priorities in Minnesota*

In evaluating Minnesota's existing senior nutrition program in light of the Older Americans Act and the current environment, the Senior Nutrition Task Force (in its 2009 report to the Minnesota Board on Aging) emphasized priorities of improved targeting of meal services and innovation in meal models to enhance the sustainability of the program. They recommended that meal services be targeted at those at risk for institutional placement in addition to members of diverse populations, seniors who live in rural areas, and those with Limited English Proficiency. In addition, they suggested that existing innovations be expanded and

[3] While the Agency on Aging permits the provision of nutrition education and counseling using Title III funding, the state of Minnesota does not use Title III funding for these services.

new innovations be undertaken to improve the provision of senior nutrition services. These innovations include (but are not limited to) ethnic meals, increased consumer choice of meals and delivery, and broader food resource outreach and awareness. These recommendations (as well as the others not listed here) have guided the priorities of the Metropolitan Area Agency on Aging in their selection of Title III meal providers, as illustrated below by the 2010 MAAA Senior Nutrition Services Request for Proposals:

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> The Metropolitan Area Agency on Aging (MAAA) is seeking a provider/s of senior nutrition services in Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington counties of Minnesota. The senior nutrition program provides meals to frail, older adults at the greatest risk of losing their independence. This program provides nutritionally balanced meals, both congregate and home-delivered preparation and delivery.
>
> The federal Older Americans Act (www.aoa.gov/AoARoot/AoA_Programs/OAA/index.aspx), Sec. 306 (a)(4)(A), requires Title III nutrition services to be targeted to older individuals with greatest economic need, older individuals with greatest social need, and older individuals at risk for institutional placement. Greater priority is to be given to low-income individuals who are members of diverse populations, have limited English proficiency, and/or reside in rural areas. The Minnesota Board on Aging (MBA), the state unit on aging in Minnesota, implements the Older Americans Act through funding allocations to the Area Agencies on Aging (AAAs) and the development of statewide policy for senior nutrition services provided through the AAAs.
>
> In July 2008, the MBA established the Senior Nutrition Task Force (www.mnaging.org/admin/ntf.htm) to develop a new vision for the Senior Nutrition Program. The vision is that older Minnesotans will maintain their independence through access to healthful foods.
>
> The Task Force identified the following as priority activity areas to achieve this new vision (See Appendix D for the full 2009-2014 Senior Nutrition Priorities and Directions).
>
> 1) Maximize resources in the time of a stressed economy,
>
> 2) Build relationships between all stakeholder groups, and
>
> 3) Create a sustainable program that will be viable in the long-term and meet the needs of older Minnesotans.
>
> The MAAA is seeking proposals to provide meals to these target populations in a manner that is flexible and responsive to consumer needs and preferences, and also cost-effective. The MAAA is interested in proposals that include innovations in meal types, service delivery models and consumer input. The MAAA is not seeking proposals to serve a high volume of meals to the general population of 60+ older adults.

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## *National and local scale of HDM programs*

In fiscal year 2009, Home-Delivered Meal Services nationally served about 62 percent (nearly 150 million meals) of OAA Nutrition Program meals to about 34 percent (880,000) of OAA Nutrition Program participants. (http://www.aoa.gov/aoaroot/aoa_programs/hcltc/nutrition_services).

In 2011, Title III home-delivered meal programs in Minnesota served 921,265 meals to 12,804 clients, spending $6.6 million on home-delivered meal services. Title III meals administered through the Twin Cities Metropolitan Area Agency on Aging (MAAA) comprised just shy of one-fifth (18%) of those, or 167,363 meals delivered to 1,472 clients with total expenditures of $1.3 million. Statewide, total meals served in 2011 were down by about 5 percent from 2010, but in the metro area, total meals served were down by 22 percent (see Table A1 in Appendix III for more detail).

# Literature review findings

A thorough review of the published research literature on home-delivered nutrition programs (detailed in the appendix) shows that:

- Home-delivered meal programs have been successful in reaching many older adults throughout the United States and have become a significant part of service strategies intended to support older adults in their own homes.
- While there is some difficulty in conducting accurate assessments of overall nutritional benefit, these programs are widely regarded as effective in meeting the nutritional needs of participants.
- Programs are generally popular with consumers and seen as beneficial in helping them to meet their basic food needs and remain at home.

However, the literature also suggests that:

- Some groups are underserved by the existing programs (especially ethnic minorities with different food preferences and geographically isolated or socially impaired adults).
- There are food safety and cost concerns associated with the traditional hot daily meal delivery model.
- There are concerns that changes to the traditional model (including the potential reduction in use of volunteer delivery personnel and the daily contacts they have with meal recipients) may damage the volunteer base supporting many current models and reduce the opportunity for "safety checks" by volunteers.
- Alternative service models include the use of once-weekly frozen meal delivery for some participants as well as the use of commercial vendors who ship prepackaged meals directly to the recipient.

The details of this literature review are presented in Appendix I and examine two primary research areas: (1) the effectiveness of home-delivered meal programs in reaching their target population, and (2) participant satisfaction and nutritional outcomes as a result of their participation in home-delivered meal programs. A discussion of the more recent growth in the use of frozen home-delivered meals is presented below.

## *The expanding use of frozen home-delivered meals*

The literature describes two primary delivery models for home-delivered meals – the hot meal delivered daily and the frozen meal delivered weekly (or twice weekly).[4] The traditional home-delivered meal has been a hot meal delivered at lunchtime on weekdays by a volunteer driver. This model provides a weekday check-in with the participant, a service that some argue is fundamental to the positive impact of home-delivered meal programs, and some studies show that participants prefer hot meals.

As of 1978, it became legal for home-delivered meal providers to serve "hot, cold, frozen, dried, canned, or supplemental foods" so long as each meal continues to meet the minimum requirement of one-third of the Recommended Daily Intake as established by the National Academy of Sciences (Balsam and Carlin, 1990, p. 254). Weekly delivery of frozen meals has since emerged as a solution to a list of challenges of daily hot meals including rising delivery costs, volunteer management, and food safety. In the frozen delivery model, drivers provide the full week's meals in one delivery (or occasionally two) per week.

Most HDM programs appear to rely primarily on one delivery model, but programs are increasingly offering mixes of these models to better meet client needs. This section summarizes the literature's justification for the expansion of frozen home-delivered meals, provides a brief scan of the landscape of nationwide HDM program models, and closes with the frozen HDM debate that prompted this evaluation.

### Motivation for frozen HDMs

Balsam and Carlin (p. 257) list the benefits of weekly frozen meal delivery, including

- Cost reductions without corresponding reductions in quality
- More precise and customized nutrient content in the meals
- Enhanced ease of providing a variety of meals to meet diverse ethnic, cultural, and religious needs of participants
- Fewer food safety concerns in meal delivery and storage
- Potential for increased meal provision thanks to cost savings, including more than one meal per day for some participants at high nutritional risk and meals on weekends

[4] Hot daily meals are generally delivered on weekdays only, but some programs deliver on weekends as well.

Kretser et al. (2003, p. 336) also identify the benefit of increased choice for participants in deciding when they want to eat their meal, and a pilot study of frozen meals in New York City found that clients were pleased with the flexibility in frozen meal delivery (KPMG, 2007, p. 33). In addition, thanks to the different production process for frozen meals, many programs can grant greater client choice of meal contents for frozen meals than for hot meals. The enhanced level of client choice should, in theory, improve the rates of meal consumption among clients, though we were unable to find any empirical evidence of this to date.

The increasingly high costs of delivery have emerged as another popular and compelling reason for programs to switch to less frequent meal delivery, but this justification has (to date) limited evidence in the formal literature. Balsam and Carlin cited the high costs of transportation and labor as additional motivators in the shift toward provision of frozen HDMs in 1990 (p. 254), and these factors have only increased in importance since. With rising fuel costs and increasing traffic congestion in many urban areas, the costs of daily meal delivery have led many meal providers to consider more efficient meal delivery models. In addition, while many programs rely on the service of volunteers, volunteer recruitment, retention, and management are costly processes in themselves and, as O'Dwyer and Timonen (2009, p. 35) argue, volunteerism in meal provision for older adults is "in crisis." Many programs have found paid deliverers to be more cost-effective, especially for frozen weekly meal delivery but also for hot daily meal delivery in some cases. Many program leaders cite these rising costs and their severe budget challenges in justifying the controversial switch toward the less frequent delivery model.

Finally, in the formal literature, the most common justification for frozen delivery of HDMs relates to food safety concerns of hot meal delivery. As Balsam and Carlin (1990, p. 254) explain, "Interest in frozen meals has been increasing because federal and state officials have expressed concern about the potential for growth of pathogenic organisms in foods improperly held at hazardous temperatures." Maintaining foods at safe temperatures during the course of delivery routes is difficult and frequently unsuccessful, leading to the risk of food-borne illnesses for participants, whose age and nutritional status make them more vulnerable to such illnesses. Shovic and Geoghegan (1997, p. 531) found, in two assessments of the Hawaii HDM program, that temperatures of hot food items were already below the safe level of 140°F when the deliverers picked up the trays to begin their delivery routes. Furthermore, they found that this program's meals were delivered in tin trays covered by cardboard lids, creating a safety hazard and disincentive for participants to reheat the meal to safe temperatures.

Perhaps more concerning are the food safety practices of participants after the meals are delivered. Several studies suggest that the majority of participants do not eat the hot meal

in its entirety when it is delivered. Lirette et al. (2007, p. 217) found that fewer than half of participants ate their meal when it was delivered, and results from Fey-Yensan et al. (2001, p. 1056) showed that only 42 percent of the study's 179 Rhode Island HDM participants ate their entire meal when it was delivered. In the same study, 17 percent of participants stored their uneaten meals at room temperature to be eaten later (p. 1057). Frongillo et al. (2010, p. 219) found that 19 percent of participants stored their uneaten meals at room temperature daily, and another 33 percent stored their uneaten meals at room temperature at least once per week. Some even "heated up" their refrigerated leftovers by leaving them on the counter until they reached room temperature. These unsafe behaviors, they said, were "especially common for those who received hot meals" (p. 223).

Recommendations to address the unsafe practices of HDM participants generally relate to education and delivery systems. Fey-Yensan et al. (2001, p. 1057) suggest that storage guidelines to be included on containers or that other "simplified approaches to home-based food safety education for homebound elders, their families, and caregivers" be developed. Krassie, Smart, and Roberts (2000, p. 278) and Balsam and Carlin (1990, p. 254), among others, propose that frozen meal delivery can reduce food safety risk by keeping meals frozen until participants are ready to heat them up and consume them.

### The growing popularity of frozen meal programs

As a result of benefits listed above, the frozen meal delivery model has become increasingly common. At the time of Balsam and Carlin's 1990 study, over 30 percent of their nationally representative sample of programs already offered frozen meals as part of their meal service (p. 255), and with the rapidly rising costs of delivery and growing interest in meal choice and variety among participants, this figure has surely risen since. Frozen meal programs have been implemented on a large scale in Philadelphia, Chicago, New York, Seattle, Detroit, Indianapolis, Cincinnati, Denver, and Atlanta, to name a few. Other cities (for example, St. Louis, San Diego, and Baltimore) rely primarily on hot daily meals, but many have begun to offer optional frozen meals or deliver frozen meals for weekends. Frozen meals have become especially popular among more rural communities, where distance limits the feasibility of hot daily meal delivery.

Many HDM programs now serve some mix of frozen and hot meals, choosing a standard of hot or frozen meals and giving participants the option to request the other delivery model. As a result, the percentage of meals delivered frozen varies widely, from only 17 percent of Chicago's meals to 90 percent of Philadelphia's meals in 2007 (KPMG, p. 32). Anecdotal evidence indicates that frozen meal delivery is on the rise nationwide, but we have been unable to locate any empirical analysis of this trend since Balsam and Carlin's 1990 study. In addition, though we know these delivery models coexist in many HDM programs, the extent to which each delivery model meets participants' nutritional and

social needs remains unknown, inspiring debate among meal providers, Area Agencies on Aging, and meal participants and their families.

### For-profit competition

In addition to programs that have been specifically developed by nonprofit agencies to respond to the federal mandates regarding senior nutrition, there is growing competition from for-profit organizations that have entered this market. One example is Mom's Meals, a family-owned business based in Ankeny, Iowa. Their website provides the following information about their services:

> Mom's Meals is a unique and affordable complement to existing home-delivered meal programs for those in poor health, elderly, and people with disabilities who are in rural or remote areas. As a current home-delivered meal provider (Medicaid Waiver & Title III C-2) in over 30 states, we prepare, package, and ship, via FedEx, fresh meals directly to a client's doorstep at any address in the contiguous United States. Pricing for meals under state sponsored programs are typically between $5-8 per meal (delivery included) dependent on the programs available in your area.
>
> As gas and food prices continue to rise and the number of volunteers fluctuates, our service is a great complement to current home delivered meal programs across the entire lower 48 states. We specialize in the hard-to-reach seniors that live relatively far away from congregate sites and existing meal routes. We can even deliver bulk shipments of meals with great variety to congregate sites, senior centers, etc.
>
> Mom's Meals ships fresh meals directly to a customer's doorstep every week via UPS or FedEx. Clients choose from up to 50 different meals (all Diabetic friendly) and receive a week's worth of meals at a time. Each meal has been designed by our team of registered dieticians and is prepared in our USDA inspected kitchen by a kitchen staff led by our executive chefs. Our special packaging keeps the food fresh for two weeks in the refrigerator (a similar system to the "lettuce in a bag" you see in the supermarket - no preservatives are added in this process).
>
> (http://www.momsmeals.com/programs.asp, retrieved 12/16/2011)

The growth of Mom's Meals might be indicative of the rising importance of efficiency, convenience, and choice relative to the traditional home-delivered meal priorities of daily social contact and volunteerism. This trend is an important illustration of the environment in which the MAAA has made its recent contracting decisions.

### Existing literature on frozen home-delivered meals

Few formal evaluations of frozen delivery programs exist in the literature, and the satisfaction results emerging from them are mixed. The New York City evaluation of their pilot frozen HDM program found that "most clients were happy to have the frozen meal option" and

concluded, “The survey conducted by KPMG and the views of the case management agencies support the finding of keeping the frozen meal option and for its serious consideration for city-wide introduction” (KPMG, 2007, p. 31-33). In a related study, Parsons and Roll (2004) found that only 25 percent of participants objected to receiving meals *chilled* (not frozen), and that many preferred the improved food safety of chilled meals (Parsons and Roll, 2004, p. 90-91).

On the other hand, Lirette et al. (2007, p. 217) found that 77 percent of participants wanted to receive hot meals, even though only half of participants consumed their meal when it was delivered. In addition, Frongillo et al. (2010, p. 220) found in their HDM satisfaction study that the strongest predictor of participant satisfaction was receiving hot meals.

Based on the varied results found in the studies described above, it appears likely that there are a number of other factors that affect the level of participant satisfaction with frozen or hot HDMs. The literature does not support any firm conclusion about participants' preferences for hot or frozen HDMs.

With participant satisfaction appearing to vary based on unknown contextual factors, we turn to the common concerns about the frozen delivery model. These concerns center on the social component of daily meal delivery and the needs of the population without the ability to reheat meals. Opponents of weekly frozen meal delivery argue that the daily “check-in” serves several functions including (1) verification of well-being, often by meal deliverers who are trained in identifying and addressing health emergencies (Choi, 1999, p. 398), (2) social interaction (Balsam and Carlin, 1990, p. 257-8), which has the added benefit of increasing caloric intake (Locher et al., 2005) and (3) connections to the outside world, including services or other community activities, via the meal deliverer (KPMG, 2007, p. 28). Others have noted that some elderly are unable to heat a frozen meal, could be placed at risk by handling a hot meal right out of the microwave, or may not have a microwave or other means of heating the meal.

Proponents of the frozen HDM delivery system counter that frozen meal delivery is an option and not a requirement; that hot meals will continue to be available to those who request them or those who are unable to heat a frozen meal; and that a daily telephone check-in is also available upon request in many programs. Kretser et al. (2003, p. 335) found that the daily telephone call “sufficiently met the social needs of the homebound,” and the results of a Cornell University study indicated that “the voluntary change from a five-day to two-day delivery does not appear to have a substantial impact on senior isolation” (KPMG, 2007, p. 33).

The literature provides no clear conclusion about the relative merits of hot and frozen meals or how important the daily check-in really is to the value of HDM services.

Recognizing that these questions are by nature subjective and incredibly difficult to answer, we use this report to share what we have learned in an effort to shine some light on the subject. In the next section, we provide a brief description of the Twin Cities Title III HDM programs and their costs of providing home-delivered meals. From there, we explore the experiences and opinions of deliverers as they relate to their interactions with clients, the benefits that clients reap from program participation, and the value they place on their own work as delivery drivers. We then move to the characteristics of the clients they serve, the impact of the meal programs on participant outcomes like nutrition, independent living, and social contact, and the differences in these impacts between meal and delivery models.

# Program descriptions

For 2011, MAAA contracted with three programs in the Twin Cities metropolitan area to provide home-delivered meals to consumers eligible to receive home-delivered meals under Title III of the Older Americans Act. These programs, Presbyterian Homes, Scott-Carver-Dakota CAP, and Volunteers of America of Minnesota, vary greatly in size and populations served, and comprise a mix of service models. In addition to providing home-delivered meals under Title III funding, all of these program provide meals under waiver funding and private pay arrangements.

This section presents a brief description of each program and the service models employed. Additional details about the number and types of Title III meals provided by each of these programs can be found in Table A1b of Appendix III.

## *2011 Title III Contractors*

### Volunteers of America of Minnesota (VOA)

VOA is a health and human services organization that offers a broad range of programs, including housing, healthcare, and community services. The Senior Services division of Volunteers of America of Minnesota has provided home-delivered meals in the Twin Cities area for over 15 years. VOA currently subcontracts with six Minneapolis area nonprofit groups to serve older adults who are eligible for home-delivered meals under Title III. These programs serve parts of the city of Minneapolis and first-ring suburbs.

The predominant meal model used by VOA subcontractors is a hot meal delivered weekdays by volunteer drivers, although most programs offer a frozen meal option and three programs employ paid drivers for all or some of their routes.

The current VOA Title III home-delivered meals subcontractors are CEAP (Community Emergency Assistance Program), CES (Community Emergency Services), JFCS (Jewish Family and Children's Service of Minneapolis), Northeast Dinner Bell, North Minneapolis Meals on Wheels, and TRUST, Inc.

VOA also provides Title III-funded ethnic meals to Vietnamese and Hmong consumers in the Cedar-Riverside area of Minneapolis.

A brief description of each of the VOA programs follows.

**CEAP (Community Emergency Assistance Program)**

The CEAP social services agency operates a food shelf, clothes closet, transportation, and welfare to work programs for community residents in Anoka and northern Hennepin counties. They provide home-delivered meals through their Senior Services program, which also has a chore service for older adults. CEAP was founded in 1970 and began delivering meals to home-bound individuals in the mid-1970s. The program currently serves Brooklyn Park, Brooklyn Center, and the Camden area of Minneapolis.

- Main meals model: weekday hot meals delivered by volunteer drivers.
  Weekend meals are delivered frozen, on Fridays.
- Caterer: Lancer Catering
- Average number of meals delivered each weekday: 110 – 140 (includes Title III, waivered and private pay).
- Average number of Title III meals delivered each weekday, Jan.1 – Sept. 30, 2011: 24.
- Meal delivery drivers: about 225 volunteers. Most volunteers are from area churches. In addition, the program receives assistance from several volunteer groups from local community colleges, businesses, civic organizations, and local government agencies.

**CES (Community Emergency Services)**

CES, a nonprofit organization affiliated with Augustana Lutheran Church, provides emergency food and housing assistance to residents in south Minneapolis. CES sponsors a food shelf, partners with Store to Door, and has operated a home-delivered meals program for over 30 years. Currently CES delivers meals to residents in parts of central and south Minneapolis, including the Seward neighborhood.

- Main meals model: weekday hot meals delivered by volunteer drivers. Double meals are delivered Thursdays and Fridays for reheating on Saturday and Sunday.
- Caterer: Augustana (Table Talk)
- Average number of meals delivered each weekday: 160 – 200 (includes Title III, waivered and private pay).
- Average number of Title III meals delivered each weekday, Jan.1 – Sept. 30, 2011: 25.
- Meal delivery drivers: about 400 – 500 volunteers. Most of the meal delivery is done by volunteers from local corporate business groups. The program also employs two paid drivers, who share a delivery route in a hi-rise building where access is difficult for volunteers.

**JFCS (Jewish Family and Children's Service of Minneapolis)**

JFCS, founded in 1910, offers a variety of services for seniors through its L'Chaim Senior Services Program. In addition to home-delivered meals, L'Chaim currently provides adult day services, care management, shopping assistance, home helper / companion services, bathing assistance, health maintenance services, foot care, transportation, and family consultation.

The JFCS home-delivered meals program is a collaboration between JFCS and Sholom Community Alliance, which prepares kosher meals for the program. JFCS is the only kosher home-delivered meal program in the Minneapolis area. The general delivery area includes Minnetonka, Hopkins, St. Louis Park, downtown Minneapolis and Uptown Minneapolis.

- Main meals model: weekday hot meals delivered by paid drivers. Extra weekend meals are delivered hot on Friday for reheating on Saturday and Sunday.
- Caterer: Sholom Home West
- Average number of meals delivered each weekday: 115 (includes Title III, waivered and private pay).
- Average number of Title III meals delivered each weekday, Jan.1 – Sept. 30, 2011: 5.
- Meal delivery drivers: four full-time paid drivers.

**Northeast Dinner Bell**

Northeast Dinner Bell, Inc. is a volunteer-based private nonprofit organization founded in 1973 to provide meals to homebound residents of Northeast Minneapolis. The program is housed in the Trinity United Methodist Church. The delivery area includes all of Northeast Minneapolis and the parts of St. Anthony Village in Hennepin County.

- Main meals model: weekday hot meals delivered by volunteer drivers. Double meals are delivered on Thursday and Friday for reheating on Saturday and Sunday.
- Caterer: Augustana (Table Talk)
- Average number of meals delivered each weekday: 95 – 135 (includes Title III, waivered and private pay).
- Average number of Title III meals delivered each weekday, Jan.1 – Sept. 30, 2011: 33.

- Meal delivery drivers: 250 – 275 volunteers. About half of the volunteers come from participating area church groups. Individual community members and volunteer groups from local businesses and civic organizations fill the other half of the meal delivery positions.

**North Minneapolis Meals on Wheels**

North Minneapolis Meals on Wheels has been delivering meals to homebound residents of north Minneapolis since 1970. The program is housed in the St. Olaf Residence and is supported by 18 member churches in north Minneapolis. The program's general delivery area is the near North Side and Camden neighborhoods of Minneapolis.

- Main meals model: weekday hot meals delivered by both paid and volunteer drivers. Double meals are delivered hot on Thursday and Friday for reheating on Saturday and Sunday.

- Caterer: St. Olaf Residence

- Average number of meals delivered each weekday: 160 – 250 (includes Title III, waivered and private pay).

- Average number of Title III meals delivered each weekday, Jan.1 – Sept. 30, 2011: 56.

- Meal delivery drivers: eight part-time paid drivers deliver 80 percent of the meals. Approximately 50 volunteers assist the program with the remaining 20 percent of the deliveries. Most of the volunteers are individual community members or members of the churches that sponsor the program.

**TRUST, Inc.**

TRUST is a private human service agency in south Minneapolis, founded in 1970. It is a coalition of 18 south Minneapolis congregations, which work together to sponsor chore assistance, parish nurse services, grocery delivery, home-delivered meals, adult education, estate sales, and Habitat for Humanity volunteers. The TRUST home-delivered meals program started in 1973. The current delivery area includes the Calhoun/Isles neighborhood and parts of southwest Minneapolis.

- Main meals model: weekday hot meals delivery by volunteers. Double meals are delivered on Thursday and Friday for reheating on Saturday and Sunday.

- Caterer: Walker Methodist Health Center and Redeemer Residence

- Average number of meals delivered each weekday: 100 (includes Title III, waivered and private pay).
- Average number of Title III meals delivered each weekday, Jan.1 – Sept. 30, 2011: 42.
- Meal delivery drivers: about 150 – 175 volunteers. Volunteers from TRUST's member congregations do about 80 percent of the meal deliveries; the rest are done by TRUST's corporate partner, Xcel Energy and individual community volunteers.

**Vietnamese and Hmong ethnic meals**

Volunteers of America – Minnesota has received Title III funding to provide ethnic home-delivered meals in the Cedar-Riverside area of Minneapolis to Hmong consumers since 2005 and to Vietnamese consumers since 2009.

- Main meals model: weekday hot meals delivered by paid drivers. Double meals are delivered on Thursday and Friday for reheating on Saturday and Sunday. A few consumers receive frozen meals once a week.
- Caterer: Lucky Dragon
- Average number of meals delivered each weekday: 35 – 65 (includes Title III, waivered and private pay).
- Average number of Title III meals delivered each weekday, Jan.1 – Sept. 30, 2011: 25.
- Meal deliver drivers: one part time paid driver

### Scott-Carver-Dakota CAP Agency (SCD CAP)

The Scott-Carver-Dakota CAP Agency is one of 28 community action agencies in the state of Minnesota. CAP agencies work in partnership with the communities they serve to provide programs that promote the economic and social well-being of all residents. The SCD CAP Senior Nutrition Program has delivered meals to homebound seniors in Scott, Carver, and Dakota counties for more than 30 years.

- The SCD CAP home-delivered meals program has nine sites at congregate dining locations where volunteers pick up meals to deliver to seniors in 16 different communities in Scott, Carver, and Dakota counties. The distribution sites are in the following communities:
  - Jordan, New Prague, and Prior Lake (Scott County)

- Chanhassen, Chaska, and Waconia (Carver County)
- Farmington, Lakeville, and, Rosemount (Dakota County)

- Main meals model: weekday hot meals delivered by volunteer drivers
- Caterers: Talheim Care Center (Chaska site) and Lancer Catering (other 8 sites)
- Average number of meals delivered each weekday: 203 (includes Title III, waivered and private pay).
- Average number of Title III meals delivered each weekday, Jan.1 – Sept. 30, 2011: 120.
- Meal delivery drivers: 600-700 volunteers. Almost all of the SCD CAP volunteers are individual community volunteers. The program also has one corporate volunteer group that delivers meals once a month in Rosemount.

### Presbyterian Homes and Services (Optage Senior Dining Choices)

Presbyterian Homes and Services offers a broad continuum of housing and community-based services for older adults throughout the state of Minnesota. The organization began providing home-delivered meals in 2008, through its Creative Senior Dining program. Beginning in January 2011, MAAA contracted with Presbyterian Homes and Services to provide Title III funded meals in Ramsey and Washington counties.

The Presbyterian Homes delivery area includes Ramsey and Washington counties (Title III, waivered, and private pay clients), and parts of Hennepin, Anoka, and Dakota counties (waivered and private pay clients).

- Main meals model: Once a week delivery of frozen meals by paid drivers. The program also has daily weekday hot meal delivery of ethnic (Hmong and Karen) and non-ethnic meals.
- Caterer: Presbyterian Homes and Services commissary kitchen (internal)
- Average number of meals delivered each weekday: 1,595 (includes Title III, waivered and private pay).
- Average number of Title III meals delivered each weekday, Jan.1 – Sept. 30, 2011: 310.
- Meal delivery drivers: Eight full time paid drivers and about 130 volunteer drivers. Almost all of the delivery volunteers are individual community members; many are members of the churches in the communities served by Presbyterian Homes.

## *Program models*

The home-delivered meal providers currently funded by the MAAA employ two main service models:

1. Hot meals with limited meal choices delivered all or most weekdays by volunteer drivers

2. Frozen meals with expanded meal choices delivered once a week by paid drivers.

Most of the programs blend these two models to some degree. A brief description of how these programs blend elements of the traditional hot meal model and the newer frozen meal program models follows.

### Hot meals delivered all or most weekdays

The VOA and SCD CAP home-delivered meal providers have the hot meal delivered daily on weekdays as their basic model. The Presbyterian Homes program has as its primary model frozen meals delivered weekly. However, each of these programs offers consumers some choice within the basic model, including options for frozen, fresh, and ready-to-heat meals, ability to make substitutions in some meal items, and flexibility in delivery schedules.

Several providers that use the hot daily weekday meal as their primary model also offer frozen meals delivered once or twice a week. These meals are, for the most part, frozen versions of the same meals that would otherwise be delivered hot, and do not typically give consumers additional meal choices. According to these providers, this option has not had much uptake in their programs. These providers report that few clients overall have chosen the frozen meals option, and very few Title III clients served by these programs have expressed interest in receiving frozen meals as their primary meal model. They say that their Title III clients are mostly older; many are frail or living alone, and they enjoy receiving a hot midday meal that is ready to eat.

In addition, most programs allow consumers to choose the number of meals (within Title III program guidelines) they wish to receive each week as well as some flexibility in delivery schedules. Consumers can decide which days of the week they wish to have their meals delivered.

All providers say they do whatever they can to respond to consumers' individual preferences and that they are able to accommodate the majority of requests for substitutions in the main entrée and items in the cold bag (for example, juice instead of milk, white bread versus whole wheat, and fruit and dessert substitutions). Menu choices in the traditional daily

hot meal programs are limited to alternatives available within pre-set menus, which usually rotate on a four or five-week schedule.

### Frozen meals delivered once a week

Presbyterian Homes has as its primary model frozen meals delivered once a week by paid drivers. The program offers 75 frozen entrée choices. Consumers can customize their frozen meal choices every week or choose a pre-set menu of frozen meals that rotates on a five-week schedule and also have the option of ordering a combination of hot, fresh, ready-to-heat, and frozen meals each week. Most of the frozen meals are delivered by paid drivers, but the program has begun experimenting with using volunteers for some of its once-a-week frozen meal delivery.

In addition, Presbyterian Homes offers daily weekday hot meal delivery, with a pre-set menu. This option is the same as the traditional hot meal programs described above. Hot meal choices are limited to alternatives available within the pre-set menus. Consumers who received hot meals all or most weekdays also can order a combination of hot, fresh, and frozen meals.

Ethnic home-delivered meals are also available from the Presbyterian Homes program. Hmong and Karen meals are offered either as frozen meals delivered once a week, a hot meal delivered daily on weekdays, or a combination of frozen and hot meals. These meals are delivered by paid drivers who speak the consumer's native language.

### Mix of volunteer and paid delivery drivers

As described above, home-delivered meal programs' use of volunteer and paid delivery drivers is mixed. An overview of the types of drivers utilized by each program follows:

- SCD CAP, CEAP, TRUST, and NE Dinner Bell programs rely entirely on volunteer drivers.
- CES employs two paid delivery drivers; the rest are volunteers, many of whom volunteer as part of groups from nearby businesses.
- Presbyterian Homes and North Minneapolis Meals on Wheels use mostly paid drivers, but each of these programs also actively recruits volunteer drivers.
  - Presbyterian Homes' efforts to expand its volunteer driver program over the past year have been successful, and the volunteer component has grown substantially.
  - North Minneapolis Meals on Wheels has lost a significant number of its volunteer drivers in recent years. The program now employs paid drivers for 80% of its

meal deliveries. They continue publicizing volunteer driver opportunities through a variety of community channels, in an effort to increase their volunteer numbers.

- JFCS and the ethnic meals program operated by VOA Minnesota use only paid drivers. Neither program has plans to build a volunteer group to assist with meal delivery.

### Features common to all of the home-delivered meals models

All of the meals models provide meals for the weekends and holidays for those who need them. These meals are delivered hot, cold, or frozen on one or two days before the weekend or holiday.

All of the programs are able to provide both the regular and special diets (diabetic, reduced sodium, etc.) that meet the detailed nutritional requirements for home-delivered meals funded under Title III.

## *Challenges for home-delivered meal program providers*

### Balancing program budgets (financial sustainability)

Virtually all of the providers reported that keeping their programs financially stable is their most pressing challenge. Providers cite a combination of factors that make it increasingly difficult for them to balance their program budgets. They include the following:

- Providers report that programs are expensive to operate. They cite expenses including costs of food and equipment upkeep (delivery containers and bags; refrigeration equipment).

- Providers say they are attempting to include more fresh fruits and vegetables in their meals, and that these foods add costs to the meals. Some also say that the overall cost of food has risen in recent years.

- Providers perceive that reimbursements/allotments for both Title III and waivered services have been reduced in recent years while the nutritional regulations and documentation required of programs that receive these funds have become increasingly detailed and add to program costs.

- In some programs, the donations consumers currently make for their Title III meals are smaller than in previous years.

- Providers report that foundation gifts and other donations are generally down in recent years and new grants and donations are more difficult to obtain.

Providers have responded to their current financial circumstances in various ways. Some programs that are not able to meet their expenses through their current revenue sources say they are dipping into their reserves to make ends meet; some report that they have cut paid staff positions and/or hours. Several providers say they are devoting more time to fundraising activities. In addition, providers say they continually work to obtain the best values possible in food prices and catering services without sacrificing the quality of the meals.

Although providers note that there is additional time and cost associated with receiving Title III funding, virtually all say that the Title III program is an important component of their services, and one that they wish to maintain. They also say that the technical assistance, advice, and other support they receive from VOA or the MAAA has a positive impact on the overall quality of their programs.

### Competition from commercial home-delivered meals providers

Several home-delivered meal programs, including some that offer frozen meal options, view commercial meal providers as viable competitors. They say that they know of instances where their clients have switched a commercial provider, most often Mom's Meals. However, the providers added that they also know that at least some of these clients have since returned to their programs.

### Transportation costs for volunteers

A number of providers feel that transportation costs can be an impediment to recruiting volunteer drivers, who are not reimbursed for their mileage when delivering meals. Although volunteers are able to claim mileage as a deduction ($.14 per mile) on their tax returns, the amount allowed does not come close to the actual cost of operating their vehicles. The SCD CAP program mentioned gas prices as one of the major factors in their inability to serve their most rural areas as well as they would like.

## *Volunteer involvement in home-delivered meal programs*

Volunteers provide significant support to most of the home-delivered meal programs in this study. Volunteer delivery drivers are the most numerous and visible volunteer resources in these programs. In addition, most providers also incorporate volunteers in their operations in a variety of other important roles. They include:

- Preparing meals for pick-up by drivers (packing and labeling meals, noting special route instructions

- Helping with office tasks (schedules, record keeping, phone calls, newsletters, other communication with recipients)
- Assisting with fundraising activities
- Planning volunteer get-togethers and recognition events
- Recruiting new volunteers and coordinating volunteer routes (corporate, church, and other groups that provide volunteer delivery drivers)
- Serving on home-delivered meals program advisory boards

All of the programs that currently have a volunteer component (exceptions are JFCS and VOA – Minnesota's ethnic meals) express a strong commitment to continue making volunteers an integral part of their program. The two programs with the most paid drivers (North Minneapolis MOW and Presbyterian Homes) are actively working to increase their numbers of volunteer delivery drivers.

## *Additional assistance offered by home-delivered meal programs to help recipients maintain their current living arrangements*

Almost all of the home-delivered meal programs in this study are directly affiliated with social service agencies that provide some other community-based services to older adults (exceptions are North Minneapolis Meals on Wheels and Northeast Dinner Bell).

All of the home-delivered meals providers report that they make sure their meals recipients receive information about additional home-based services available to help them stay in their current living situation including, but not limited to, services provided by their own agencies. Examples of these services are other nutrition resources, home-health programs, chore assistance, and transportation services. Several providers specifically mentioned that they also inform their meals clients about energy assistance, county supports and help available through the Senior LinkAge Line®. One provider recently received a United Way grant to hire a family service worker who will make home visits to clients and assist them with applications to the SNAP food stamp program.

Providers also say that they try to have a family member or other caregiver present when they do the in-person assessment and application for Title III meals, and at other times when a home visit is made, so that they can also talk with them about additional supportive services that may be helpful for the client.

## *Recent and planned program changes*

Providers reported that they have not recently made major changes to their program models. They did indicate, however, that they had made some adjustments within their programs to better meet consumer needs and preferences, and improve overall program quality. Some examples:

- **New catering arrangements**
  - Northeast Dinner Bell changed to Augustana (Table Talk).
  - SCD CAP and CEAP changed to Lancer Catering.
  - Presbyterian Homes built a large commissary in which they prepare all of their home-delivered meals, as well as meals for some of their other programs.
- **Ethnic meals**
  - VOA started a daily weekday hot meal program that delivers ethnic meals to Vietnamese consumers.
  - Presbyterian Homes added ethnic (Hmong and Karen) hot meals delivered daily on weekdays.
- **Targeted program outreach**
  - CES is doing more direct marketing within the neighborhoods it serves, and is trying to reach more of the older adults who qualify for Title III meals.
  - SCD CAP is developing a new marketing plan that targets individuals potentially eligible for Title III funding and does a more effective job explaining the program and its benefits. They are employing an intergenerational message to make family members more aware of the program, see home-delivered meals in a positive light, and reduce the resistance many people have to asking for help.
  - All providers indicated that they felt there were unmet nutrition needs among older adults in the areas they serve, and that their programs could provide more meals funded under Title III. However, several providers also said that their programs lacked the resources and expertise to do an effective job of outreach to underserved groups.
- **Improving service to rural areas.** SCD CAP is working with family members to get meals to clients who live in the outlying areas that are difficult to serve with the

daily hot meals model. One example: in the Farmington area, SCD CAP now has a Title III client whose niece picks up frozen meals once a week and takes them to her.

None of the providers indicated that they are planning to change their basic program models in the near future. They said, rather, that they will continue to seek ways to strengthen their current programs. Several of the traditional daily weekday hot meals providers said that they are open to considering developing more frozen meal and weekly delivery options, as well as providing ethnic meals. All of the providers that currently use volunteer delivery drivers said they are committed to continuing and strengthening this component of their program.

# Program costs

With such a diverse combination of scales, client populations served, specialty meal types, delivery methods, and organizational settings for these meal programs, it is difficult to take an apples-to-apples approach to this cost analysis. Furthermore, separating Title III expenses from expenses associated with other programming proved to be a challenging task for the programs.[5] As a result, all comparisons are, by necessity, an oversimplification of the circumstances, and should be interpreted with caution.

The unit cost per meal ranges from a low of $7.22 (for North Minneapolis Meals on Wheels) to a high of $10.50 (for the Kosher meals supplied by Jewish Family and Children's Services), and the average across providers is $8.60 per meal (Table 1). The average participant contribution across providers is $2.09, leading to an average net cost (after participant contribution) of $6.51.

Of the total cost per meal, about half ($4.14) goes to the costs of the meal itself, while 36 percent ($3.12) goes to personnel and staffing, 11 percent ($0.94) to overhead, and 5 percent ($0.41) to other costs (Table 2). VOA and Jewish Family and Children's Services pay higher-than-average costs for the contents of their ethnically appropriate (Vietnamese and Kosher) meals, while Northeast Dinner Bell and Scott-Carver-Dakota CAP face higher personnel/staffing costs.

[5] We would like to reiterate our appreciation of the effort and outstanding cooperation that we received from the meal programs.

## 1. Total program costs, meals served, and participant/government contributions

| | Total Title III meals served [a] | Unit cost | Average participant contribution | Net cost [b] |
|---|---|---|---|---|
| Community Emergency Assistance Program [c] | 4,624 | $ 8.49 | $ 2.33 | $ 6.17 |
| Community Emergency Services | 4,868 | $ 7.86 | $ 1.56 | $ 6.30 |
| Jewish Family/Children's Services | 949 | $ 10.50 | $ 3.12 | $ 7.38 |
| Northeast Dinner Bell | 6,427 | $ 8.64 | $ 4.05 | $ 4.58 |
| North Minneapolis MOW | 10,992 | $ 7.22 | $ 0.55 | $ 6.67 |
| Presbyterian Homes | 60,454 | $ 7.98 | $ 1.34 | $ 6.64 |
| Scott-Carver-Dakota CAP | 23,411 | $ 10.01 | $ 3.16 | $ 6.85 |
| TRUST | 8,262 | $ 8.39 | $ 2.71 | $ 5.68 |
| Volunteers of America | 4,811 | $ 8.33 | $ - | $ 8.33 |
| Average | 13,866 | $ 8.60 | $ 2.09 | $ 6.51 |

***Notes:*** *All figures reflect Wilder Research analysis of self-reported financial data from providers.*

*a Meal totals shown are reported by MAAA and some differ slightly (by 8 percent or less for all but one of the providers) from those reported by meal providers. Unit cost, average participant contribution, and net cost are calculated based on provider-reported meal totals.*

*b unit cost minus average participant contribution.*

*c Community Emergency Assistance Program (CEAP) reported additional meals for which they did not receive Title III reimbursement. Calculations for CEAP are based on the total Title III meal counts reported to Wilder by CEAP.*

## 2. Program costs by category

| | Personnel/ staffing costs | | Overhead costs | | Meal costs | | Other costs | | Unit Cost | Total cost of program |
|---|---|---|---|---|---|---|---|---|---|---|
| | Cost/ Meal | % of Total | Cost/ Meal | % of Total | Cost/ Meal | % of Total | Cost/ Meal | % of Total | | |
| Community Emergency Assistance Program [a] | $ 3.27 | 38% | $ 1.46 | 17% | $ 3.76 | 44% | $ 0.01 | - | $ 8.49 | $ 72,631 |
| Community Emergency Services | $ 3.27 | 42% | $ 0.89 | 11% | $ 3.61 | 46% | $ 0.09 | 1% | $ 7.86 | $ 41,287 |
| Jewish Family/Children's Services | $ 2.66 | 25% | $ 1.96 | 19% | $ 5.88 | 56% | $ - | - | $ 10.50 | $ 10,102 |
| Northeast Dinner Bell | $ 4.27 | 49% | $ 0.71 | 8% | $ 3.58 | 41% | $ 0.07 | 1% | $ 8.64 | $ 54,253 |
| North Minneapolis MOW | $ 2.35 | 33% | $ 0.92 | 13% | $ 3.95 | 55% | $ - | - | $ 7.22 | $ 82,081 |
| Presbyterian Homes | $ 2.54 | 32% | $ 0.44 | 6% | $ 3.83 | 48% | $ 1.16 | 15% | $ 7.98 | $ 482,175 |
| Scott-Carver-Dakota CAP | $ 4.07 | 41% | $ 0.28 | 3% | $ 3.78 | 38% | $ 1.88 | 19% | $ 10.01 | $ 234,353 |
| TRUST | $ 3.76 | 45% | $ 0.71 | 8% | $ 3.46 | 41% | $ 0.47 | 6% | $ 8.39 | $ 69,324 |
| Volunteers of America | $ 1.85 | 22% | $ 1.07 | 13% | $ 5.42 | 65% | $ - | - | $ 8.33 | $ 40,091 |
| Average | $ 3.12 | 36% | $ 0.94 | 11% | $ 4.14 | 48% | $ 0.41 | 5% | $ 8.60 | $ 120,700 |

***Notes:*** *All figures reflect Wilder Research analysis of self-reported financial data from providers.*

[a] *Community Emergency Assistance Program (CEAP) reported a meal total that was 85 percent higher than that reported by MAAA, most likely reflecting meals served through non-Title III programs. All CEAP costs are calculated based on their 8,550 reported meals, not just the 4,624 Title III meals.*

# Views of paid and volunteer delivery drivers

Wilder Research conducted 36 interviews with volunteer and paid delivery drivers including those drivers working for Presbyterian Homes, Scott Carver Dakota CAP Agency, and Volunteers of America (VOA) from October 11 through December 27, 2011. The interviews included drivers from four of the larger VOA subcontractor programs including Community Emergency Services, North Minneapolis Meals on Wheels, Northeast Dinner Bell, and TRUST. No drivers from the two smallest VOA subcontractors (CEAP and Jewish Family and Children's Service) or the VOA's ethnic meals program were interviewed.

Volunteer drivers were selected at random from lists provided by each provider agency. Twenty-eight interviews were conducted with volunteer drivers. With agency permission, eight paid drivers were interviewed including five who worked for Presbyterian Homes and three who worked for the North Minneapolis Meals on Wheels program.

## *Driver experience and responsibilities*

- On average, paid delivery drivers in these interviews have served in their positions for 1.5 years, compared to volunteer delivery drivers who have typically served for 7.5 years.
- Paid drivers are typically scheduled to deliver frozen meals for four or five days each week compared to volunteer drivers who typically deliver hot meals two to four times each month. There are a few volunteers who also deliver frozen meals to select clients and a few paid drivers (employed by agencies other than Presbyterian Homes) who mainly deliver hot meals but who also occasionally deliver frozen or chilled meals to some consumers, especially for weekend or holiday meals.
- Paid drivers typically deliver to 20 or 30 meal recipients on each of their routes compared to volunteer drivers, who typically serve between six and 10 clients each time they are scheduled to work.
- Both paid and volunteer drivers usually deliver on the same routes from week to week.

## *Time spent by drivers with meal recipients*

Both paid and volunteer drivers report that the time spent with each meal recipient can vary considerably, from less than a minute to as much as 10 or 15 minutes. Both paid and volunteer drivers acknowledge that they try to deliver last to those clients they know will wish to talk. The following comments are illustrative:

> With the majority it's just a couple of minutes. You do spend more time with certain people – those you get to know over time. Maybe there are one or two at any time that you spend time talking with. (volunteer driver)
>
> Very little. Often they are there at the door to take the meal. One lady I may chat with for 2 to 3 minutes, as she is a lady from our church. (volunteer driver)
>
> We bring the food, say "Hi, how are you doing," pick up their empty container and leave. Some probably would like a little company, but you need to move along with the meals. (volunteer driver)
>
> It depends on the client, some don't let you in. There are certain people who want to spend a little time talking or ask me to, say, grab a blanket or something from the cupboard for them. Or help them put on their shoes – those kinds of things. (paid driver)
>
> If we spend too much time with one person, others who are expecting their meals sometimes get concerned if we don't show up when expected. (paid driver)
>
> It depends; some people don't even want you to come in. Occasionally I help people fill out their menu choices. They can also e-mail or call this information into the office. (*paid driver*)

## *Assistance and safety checks provided by drivers*

- Drivers are rarely asked to help meal recipients open their hot meals or items in the cold bag, like milk cartons. More often they are asked to place the meal on the table or on a counter, especially if the recipient has mobility problems. Most volunteers report that they try to be flexible, based on the recipients' requests.

- Drivers occasionally help recipients to store their meals in the refrigerator or freezer. Drivers report that this is part of their training. Paid drivers from the Presbyterian Homes program also report that they occasionally help recipients fill out their menu choices, and do this for some clients on a regular basis.

- Both paid and volunteer drivers are instructed to be alert to and respond appropriately to safety concerns. There appears to be little difference between paid and volunteer drivers regarding this activity, except for the fact that such checks occur more often for those who receive hot meals daily. The following comments are illustrative:

> If it is an acute thing, I would call 911. But I would call program staff, typically. They know who to call next. *(volunteer driver)*
>
> I have called staff a couple of times. We have been doing this long enough that we know people and what to expect. And they know us well enough that if something is going on they will let us know. *(volunteer driver)*

> I prefer to be able to walk in – for at least 75% of the recipients – to check on their general safety, hygiene, the temperature in their home, whether recipient is dressed, whether there is a gas smell, whether anything has changed for the worse. *(volunteer driver)*
>
> I look at how the client is dressed and acting. I look at the outside, too – like if the snow is shoveled or the grass is cut. We take the check-in seriously. *(paid driver)*
>
> I always ask people how they are doing. I ask myself if they seem like their normal selves. I will make more inquiries to the client if something does not seem right. For example, if there is urine smell or someone seems confused. I always report these things back to our office. *(paid driver)*
>
> It's pretty much just a visual check that everything seems okay. *(paid driver)*

- Regarding the frequency with which drivers encounter reportable problems, approximately one quarter of both volunteer and paid delivery personnel report encountering a situation that required some type of attention within the last two months. Based on the provider interviews, it does not appear that there are systematic records kept of such events, but it is clear that there is some type of follow-up in response to each report.

- When drivers were asked if they had ever been the first person to discover a recipient experiencing an emergency or crisis, three of the 28 volunteer drivers (11%) compared to four of the eight paid drivers (50%) reported such an experience. Such a difference is to be expected, given the substantially larger number of client contacts among paid drivers.

## *Driver response when client is absent*

Both paid and volunteer drivers employ a variety of strategies if someone fails to answer the door at the time of delivery. The following comments are illustrative:

> If the client is not home, we do try to call them, but if they don't answer, we take the meal back and let the office know. If the office cannot reach the client, they will contact the emergency contact or the case manager, depending on the circumstances. If there are other concerns, they might also call the police to do a welfare check. (*paid driver*)
>
> A lot of people are slow getting to the door, so I give them a good amount of time. After that I'll call the recipient directly. If there is no answer, I'll leave a message, if possible, saying I'll call back in five minutes. If I'm unable to get any response, I may call the emergency contact or, in any housing complex, go to the office and maybe be able to leave meals in a safe place. It depends. If the client is not home and leaves a cooler out, we will leave the meal there. If the client is often not home and needs a cooler, the program will provide one. (*paid driver*)

> I leave the meal at the door. That has happened a lot. In the case of an apartment building, I will ask the receptionist desk whether the person is there. She probably doesn't know. I would then leave the meal on the floor by the door. (*volunteer driver*)
>
> We check the instructions on the delivery sheet. Sometimes we can leave the meal in a cooler if the recipient provides it. We usually call the recipient from our cell phone. We might call an alternate number, if available, like a caregiver or friend. We will call the office if other instructions if needed. (*volunteer driver*)
>
> I take it case-by-case. The people I know – sometimes they've told us that the door will be unlocked and sometimes they say, "Come in." Or if they don't call to me, I step in. It is standard to leave a card if you can't rouse the recipient. Then when I get back to the program I tell the staff, and then they follow up. (*volunteer driver*)

## *Driver relationships with meal recipients*

Delivery personnel, regardless of whether they serve as paid or volunteer drivers, vary considerably in their views regarding the nature of their relationships with home-delivered meal consumers. Virtually all delivery personnel recognize the fact that their primary responsibility is to deliver nutritious meals in a timely fashion and that this work must be done efficiently because there are multiple people on each route who need to be served. In general, deeper relationships that offer more personal support and encouragement tend to be the exception rather than the rule. The following comments illustrate substantial variation in how volunteer drivers define these relationships.

> I wouldn't say it is a relationship. I could rattle off the names of most of them. I spend some time with my friend from church. It is just how you feel at the moment. You just do what that moment requires. If it were my parent, I would be appreciative if there was somebody seeing them every day. (*volunteer driver*)
>
> When you do the same route for many years, you get to know people. One lady I got to know quite well. I have sat and talked with her as long as 15 to 20 minutes, but that is rare. There are a couple of other folks who will say a few things to me. (*volunteer driver*)
>
> After a while you begin to greet by name those who want you to do so. It's pretty much a superficial and friendly relationship. You are there for a purpose, to deliver the meal, and often don't go inside the home. (*volunteer driver*)
>
> You get to know people over time – even just taking five or 10 minutes to talk when you deliver a meal adds up over time. This part is almost as important to some people as getting the meal. One customer became a friend of our family. (*volunteer driver*)

> It's not really a relationship, but they do get to know you and are eager to see you come. They know the day you are coming. I think this check-in is a real help in keeping them well. (*volunteer driver*)
>
> I have developed a friendship with one lady. [She] was very worried about her car. My friend was able to help [with her car problems]. I have developed a few friendships with people and really enjoy it. (*volunteer driver*)

Paid drivers also display a variety of perspectives on their relationships with meal recipients:

> Sometimes we need to talk to them to get them to know we are trying to help them. We build relationships with them to trust us. Hmong people have clans. The need to know us, and we need to know them so they feel connection with us, so they do not feel I'm a stranger. (*paid driver*)
>
> I'm a caregiver type. I like doing something for someone who can't get out or do their own cooking. I do get attached to people – I was very sad when one person recently passed away. (*paid driver*)
>
> They do look forward to seeing me come. Sometimes I'm the only one that they see from week to week. I really like that we see the same people each week. We are always there. They know who is coming. There are several clients I adore, and they are always happy to see me. (*paid driver*)
>
> In the past I used to work with social service and know how to get involved with them to help them. I know how to problem solve with people. I feel I can help people who have no other source of help. (*paid driver*)
>
> My relationships [with consumers] are friendly and professional - not real personal; the recipients know me, but I have no contact with them outside of my work. Some talk about their family. I have a pretty good rapport with people. Sometimes a family member is there when I deliver, and I get to chat with them and know them a bit. (*paid driver*)
>
> Some are really caring people. We like to reciprocate. Some people are talkative, and others just want you to drop off the meals and leave. Most are amicable and friendly – just that and no more. (*paid driver*)

## *Perceptions of program benefits*

Both paid and volunteer delivery personnel feel that clients get real benefits from the home-delivered meal program. There are no clear differences in observations made by volunteer staff compared to paid staff, except perhaps in the area of food or menu choices, as evident in the following comments:

> I think they are appreciative and like it. About the only thing I've heard anyone say is that they don't like the fish we get. (*volunteer driver*)

> One couple always says it is wonderful. No one ever comments on the food. People are just appreciative that someone comes to the door with a meal. (*volunteer driver*)
>
> The ones that stick with the program seem to be really happy with it. Some people may sign up, then quit in a month or two. (*volunteer driver*)
>
> For the most part, they are thankful for the meals and interaction and that someone would take the time to bring a meal to them. I don't get a lot of feedback, but, when I do, it's usually that they are grateful that they can stay in their own home with the help of the meals. Some complain about the food or the cost. (*volunteer driver*)
>
> So far they are happy to receive the meals. They wait for the meal to come. It is hard for them to cook for themselves. (*paid driver*)
>
> Most seem to love the food. (*paid driver*)
>
> Most feedback is fairly positive. A lot of older people can't get out and are grateful for the help. They write notes on the menu saying "thank you." Some people are just crabby about everything. (*paid driver*)
>
> A lot of them seem happy to see me. They look forward to the meals coming – some don't have any other contact with people. If there is something that they perceive that they don't like, they usually say so, and I tell them not to reorder again. (*paid driver*)
>
> For the most part, 95% find something in the 80 selections that they like. Most say they are grateful for the service. Some say the food is bland. They tell me that before the frozen meals program they didn't have a choice about their food – they would just get the set menu – and now they have choices and love it. (*paid driver*)
>
> I like that we give people options and choices. We also try to accommodate individual preferences with the cold bag. It's easy for the client. They just fill out their menu choices, and they only need to be home at a certain time each week. (*paid driver*)

## *Recommendations for program improvements*

Approximately one quarter of the volunteer drivers and about one third of the paid drivers offered a suggestion or recommendation for improving the program. The full range of suggestions is represented in the following comments:

> When people start the program, I think they could use more detail about how the program and the menu choices work. They really appreciate it when I take time to tell them about all the choices they have. Some people have health issues, chewing issues, etc. So the more information they get, the more they can get out of the choices this program offers. (*paid driver*)

> If they had more resources, and I am sure [*program name*] doesn't, they could make more use of electronic communications when a driver is needed. It would be good to get an e-mail reminder of my [scheduled] day or a posting of the times they need drivers. (*volunteer driver*)
>
> It would be nice if we had more time to stay longer when we could make a person feel better, but with so many people to deliver to, you don't have unlimited time to spend. (*paid driver*)
>
> I wish we had more dedicated people, so that I wouldn't have to deliver so many meals myself. (*volunteer driver*)
>
> Just having a larger budget for each meal maybe. (*paid driver*)
>
> Sometimes it is difficult to find places. We have a GPS that we use. They used to supply cards with directions but stopped doing that. Driving around in circles is no fun. (*volunteer driver*)
>
> It is a shame we cannot form a relationship with them [consumers]. I have volunteered to do that through another part of the agency. (*volunteer driver*)
>
> We need another helper on our route – the one my friend and I do. It is an hour's worth of gas. (There is always a notice in our church bulletin that we need one more, but we can't get one yet.) Somehow though, it always works out. (*volunteer driver*)
>
> [When we pick up the meals] there is no place designated for parking near the door. That might be nice. (*volunteer driver*)

## *Why volunteers participate*

One important consideration regarding how best to organize home-delivered meal services is the concern about the loss of volunteer contributors in the face of increased reliance on professional paid staff. Currently, volunteers provide the majority of delivery services for some programs and in others, represent an important adjunct to paid delivery staff members who take meals to multiple local drop spots where volunteers can then pick them up for home delivery. Some are concerned that it may be a significant loss to the community if these volunteers were discouraged from participation because their services were replaced by the work of paid staff. Others are concerned about the aging of this volunteer force and the potential loss or long-term reliability of these workers.

The comments of volunteer delivery personnel clearly reflect the importance they place on giving back to the community and attending to the needs of others. The following comments are illustrative:

> It is a sense of giving back – part of how I was raised. It is a good thing to do, and a reminder in the work week of things that are really important.
>
> It feels good to help people. We do it as a couple. We both go. It is something nice to do together.
>
> I have always felt I was such a lucky person and would like to give to the community in some way. I feel sorry for people. If I needed the meals, I would like the program.
>
> One of our volunteers is over 90 and has driven for 30 years. His legs finally just gave out. He should be recognized for what he's done. The price of gas, I know we have lost some drivers over that. We only get $.14 per mile on our taxes.
>
> I'm retired and I always wanted to be involved as a volunteer. This makes me feel good – it's a bit rewarding to know that I'm helping someone get a meal.
>
> I'm retired now, and it's an activity for me. I meet people and it's a positive experience. It makes you feel good. It's a little social thing for me – I go with my neighbor. It makes me realize that I could be on the "other side" – that I could be in the situation where I could be receiving meals.
>
> We all need to expand ourselves and understand that there are others who need our help. I like helping in tangible, point-to-point ways. This work takes you out of your day to remind you that this could be you.
>
> I've always had a soft spot for older people, and it's a good grounding exercise. It's a very tangible service. It demonstrably improves things for people. There is a certain selfishness on my part. It's gratifying. You make friends and you become fond of these people. All of my kids and my wife have come along to deliver, and they know these people to.
>
> It is the first volunteer activity I have done outside of my church activities. I can take an hour over lunch to do this. For people to live they need food, and to see people who can't get meals for themselves get a hot meal – seeing that is extremely satisfying to me.

These comments show that volunteering as a home-delivered meal delivery driver provides many adults, most of retirement age, with several ingredients that are key to vital aging. These include:

- An easy entry point for community involvement
- A challenging task that requires physical activity
- Companionship with their peers, as well as with some meals recipients
- A sense of self-efficacy

- General good feeling regarding their role in the community

In sum, volunteers value their roles as delivery drivers, and interviews with paid drivers indicated that they, too, are enthusiastic about their work. Both paid and volunteer delivery drivers noted that the length and quality of their interactions with clients vary widely based primarily on client interest, but that the pressure to deliver the rest of the meals does limit those interactions. All delivery drivers also verify the safety and well-being of the clients and take appropriate action when a client seems unwell or fails to respond. From these interviews with paid and volunteer delivery drivers, there appear to be no major differences between paid and volunteer delivery drivers in the quality or benefit of the delivery interactions aside from their frequency.

In the "Service effectiveness" section below, we will evaluate the client perspective on what (if any) difference may exist between paid and volunteer delivery drivers, but first, we discuss the demographics and health characteristics of the clients served by the Twin Cities Title III home-delivered meal programs.

# Who do HDM programs serve?

## *Participant demographics and health*

Between April and August of 2011, these three HDM providers served three distinct populations, as illustrated in Table 3. Presbyterian Homes served the youngest population, with an average age of just under 76 years old. Two-thirds of Presbyterian Homes clients were female (slightly more than the other providers). Only three-fifths of Presbyterian Homes clients were white, as the provider served a sizable population of Asians (almost one-third of their clients) and more Hispanics than the other two providers (5%). Four-fifths of Presbyterian Homes clients of color (83%) had incomes below the poverty line, and 85 percent of all Presbyterian Homes clients had incomes below 200 percent of the poverty line.

Scott-Carver-Dakota CAP (hereafter CAP), meanwhile, served an older population of primarily white individuals who were less likely than the other groups to live below the poverty line. The average age of CAP clients was over 80 and three-quarters of CAP clients were over the age of 75. Ninety-nine percent of CAP clients were white, and while relatively few CAP clients lived below the poverty line (12%), three-quarters (74%) had incomes below 200 percent of the poverty line. The racial/ethnic homogeneity and relatively high incomes of CAP clients is most likely a result of their service area in more suburban parts of the Twin Cities metro.

Given the diverse delivery areas of Volunteers of America's six subcontractors (hereafter VOA), it is unsurprising that their clients appear to blend the characteristics of Presbyterian Homes and CAP clients. VOA clients were of average age (about 78 years old) and medium levels of income compared to the others. Like the other providers' clienteles, VOA clients were predominantly white, but unlike the other providers, VOA served a substantial population of African Americans (20%) in addition to a small group of Asians (5%). As with Presbyterian Homes clients, nearly all VOA clients of color were also low-income, with 75 percent reporting incomes below the poverty line and 97 percent reporting incomes below 200 percent of the poverty line. Like both other providers, the vast majority of VOA clients (91%) reported incomes below 200 percent of the poverty line.

## 3. Demographics of HDM program participants

| | | Presbyterian Homes N=443 | | Scott-Carver-Dakota CAP N=217 | | Volunteers of America N=294 | | All Participants N=954 | |
|---|---|---|---|---|---|---|---|---|---|
| | | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| Age | Under 65 | 83 | 18.7% | 16 | 7.4% | 37 | 12.6% | 136 | 14.3% |
| | 65-74 | 133 | 30.0% | 36 | 16.6% | 69 | 23.5% | 238 | 24.9% |
| | 75-84 | 116 | 26.2% | 87 | 40.1% | 86 | 29.3% | 289 | 30.2% |
| | 85 and over | 111 | 25.1% | 78 | 35.9% | 102 | 34.7% | 291 | 30.4% |
| | Average | 75.7 | - | 80.3 | - | 78.4 | - | 77.6 | - |
| Sex | Female | 291 | 65.7% | 139 | 64.1% | 182 | 61.9% | 612 | 64.2% |
| | Male | 152 | 34.3% | 78 | 35.9% | 112 | 38.1% | 342 | 35.8% |
| Race* | African American | 10 | 2.3% | 1 | 0.5% | 59 | 20.1% | 70 | 7.4% |
| | American Indian/Alaskan | 1 | 0.2% | - | - | 7 | 2.4% | 8 | 0.8% |
| | Asian | 142 | 32.6% | - | - | 14 | 4.8% | 156 | 16.5% |
| | White | 266 | 61.1% | 214 | 98.6% | 213 | 72.4% | 693 | 73.1% |
| | Other | 16 | 3.6% | 2 | 0.9% | 1 | 0.3% | 19 | 2.0% |
| Ethnicity** | Hispanic | 22 | 5.0% | 1 | 0.5% | - | - | 23 | 2.4% |
| | Non-Hispanic | 405 | 91.4% | 184 | 84.8% | 279 | 94.9% | 868 | 91.0% |
| Income*** | Below poverty line | 215 | 58.0% | 21 | 12.0% | 115 | 46.7% | 351 | 44.3% |
| | Between 100-200% of poverty line | 99 | 26.7% | 109 | 62.3% | 108 | 43.9% | 316 | 39.9% |
| | Above 200% of poverty line | 57 | 15.4% | 45 | 25.7% | 23 | 9.3% | 125 | 15.8% |

*Source:* *MAAA (Region 11) data from the National Aging Program Information Services database using Query Builder (age, sex, race, and ethnicity) and MN 103 (income) for Presbyterian Homes, Scott-Carver-Dakota CAP, and Volunteers of America clients served between 04/01/2011 and 08/30/2011.*

**Race is unknown for 8 Presbyterian Homes clients. **Ethnicity is unknown for a total of 63 participants: 16 from Presbyterian Homes, 32 from CAP, and 15 from VOA. ***Income is unknown for 72 Presbyterian Homes clients, 42 CAP clients, and 48 VOA clients. Income by race is shown in Table A2 in Appendix III.*

Nearly two-thirds (63%) of home-delivered meal recipients were considered to be at high nutritional risk, and another quarter (24%) were at medium nutritional risk (Table A3 in Appendix III).[6] Presbyterian Homes clients were at the highest level of average nutritional risk, with 77 percent of clients at high risk. Nearly three-fifths (58%) of VOA clients and two-fifths (41%) of CAP clients were at high nutritional risk.

Clients received an average of five meals per week between April and August 2011, and more than one-quarter (28%) of clients received an average of seven or more meals per week. As the number of meals delivered to a client is determined largely based on their level of nutritional risk, it comes as no surprise that Presbyterian Homes clients received the most meals per week on average (6),[7] while CAP clients received the fewest (4).

The majority of clients (53%) reported being able to complete all of the Activities of Daily Living (ADLs – walking, bathing, eating, dressing, etc.) without help.[8] Presbyterian Homes clients were most likely to require assistance with ADLs, with 55 percent reporting a need for help with at least one ADL. CAP clients were, on average, the most capable of managing their ADLs on their own, despite their more advanced age. Clients reported needing much more help with the Independent Activities of Daily Living (IADLs – shopping, housekeeping, meal prep, transportation, etc.), with 97 percent of clients expressing difficulty with one or more IADLs. Eighty-eight percent of recipients said they required help with two or more of these activities. VOA clients were most likely to say they struggled with four or more IADLs (76%), while only 39 percent of CAP clients faced four or more IADL challenges.

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[6] See Appendix II for more information on the determinants of nutritional risk.

[7] See note (**) below Table A3 in Appendix III for more information on the limitations of NAPIS data reported by Presbyterian Homes.

[8] See Appendix II for more information on the Activities of Daily Living (ADLs) and Independent Activities of Daily Living (IADLs). The rate of ADL challenges is comparable to national results reported by Colello (2011, p. 8): "Four out of ten recipients (40%) reported needing assistance with one or more activities of daily living (ADLs, such as bathing, dressing, eating, and using the toilet); 15% of these recipients needed assistance with three or more ADLs." The rate of IADL challenges, however, is higher in the Twin Cities metro area than nationally, as Colello reports that only 85 percent of home-delivered meal recipients required help with one or more IADL.

## *Survey respondent demographics and health*

Overall, the surveyed respondents (Table 4) were quite similar to the overall population of HDM program participants. The demographic differences between providers as described above tend to apply to the respondents as well. These differences between providers are:

- Presbyterian Homes respondents were the youngest group and were more likely to be female than clients of other providers. They also represented the only Hispanic, Asian, and American Indian respondents in the sample, and were more likely than the other groups to have incomes below the poverty line.
- CAP respondents were the oldest group and nearly all were white.
- VOA respondents were of average age, represented a sizeable minority of African American respondents, and were the most likely to have incomes below 200 percent of the poverty line.

However, the sample of respondents did differ in two important ways from the overall population of HDM participants.

- Respondents were, on average, two years older than the overall population served by these providers. This difference is uniform across providers.
- White clients were overrepresented in the Presbyterian Homes and VOA samples, with Asian clients correspondingly underrepresented in each sample. This difference is due largely to the language barrier, though 12 Hmong Presbyterian Homes clients were surveyed in an effort to minimize bias.

Overall, the nutritional and independence profile of the respondents (Table A4 in Appendix III) was quite similar to the population of meal recipients. As in the sample as a whole:

- Presbyterian Homes clients were more likely than others to be at high nutritional risk (79 percent, compared to an average of 61 percent across all providers).
- Three-fifths of clients received between four and six meals per week, and the average client received five meals per week. Presbyterian Homes and VOA clients received more meals per week on average than CAP clients, who received four meals per week on average.
- More than half (56%) of respondents needed no help with any of the Activities of Daily Living (ADLs), but the vast majority (85%) of clients required assistance with two or more IADLs. All but one VOA client required assistance with at least two IADLs, while only two-thirds of CAP clients required assistance with two or more IADLs.

## 4. Demographics of survey respondents

| | | Presbyterian Homes N=88 | | Scott-Carver-Dakota CAP N=52 | | Volunteers of America N=69 | | All respondents N=209 | |
|---|---|---|---|---|---|---|---|---|---|
| | | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| Age | Under 65 | 11 | 13% | 2 | 4% | 6 | 9% | 19 | 9% |
| | 65-74 | 21 | 24% | 6 | 12% | 13 | 19% | 40 | 19% |
| | 75-84 | 27 | 31% | 25 | 48% | 21 | 30% | 73 | 35% |
| | 85 and over | 29 | 33% | 19 | 37% | 29 | 42% | 77 | 37% |
| | Average | 78 | - | 82 | - | 80 | - | 80 | - |
| Sex | Female | 58 | 66% | 33 | 63% | 42 | 61% | 133 | 64% |
| | Male | 30 | 34% | 19 | 37% | 27 | 39% | 76 | 36% |
| Race | African American | 2 | 2% | 1 | 2% | 14 | 20% | 17 | 8% |
| | American Indian/Alaskan | 1 | 1% | - | - | - | - | 1 | 0.5% |
| | Asian | 12 | 14% | - | - | - | - | 12 | 6% |
| | White | 67 | 79% | 50 | 96% | 55 | 80% | 172 | 83% |
| | Other | 3 | 4% | 1 | 2% | - | - | 4 | 2% |
| Ethnicity | Non-Hispanic | 81 | 95% | 49 | 100% | 65 | 100% | 195 | 98% |
| | Hispanic | 4 | 5% | - | - | - | - | 4 | 2% |
| Income | Below poverty line | 37 | 51% | 4 | 9% | 26 | 42% | 67 | 38% |
| | Between 100-200% of poverty line | 20 | 27% | 29 | 67% | 32 | 52% | 81 | 46% |
| | Above 200% of poverty line | 16 | 22% | 10 | 23% | 4 | 6% | 30 | 17% |

*Sources:* MAAA (Region 11) data from the National Aging Program Information Services database using Query Builder (sex, age, race and ethnicity statistics) for Presbyterian Homes, Scott-Carver-Dakota CAP, and Volunteers of America clients surveyed.

*Notes:* Ethnicity is unknown for a total of 10 respondents: 3 from Presbyterian Homes, 3 from CAP, and 4 from VOA. Race is unknown for 3 Presbyterian Homes clients, and income is unknown for 31 clients: 15 from Presbyterian Homes, 9 from CAP, and 7 from VOA.

The majority of respondents across all meal providers described their health as “good” or “excellent” (Table A5 in Appendix III). Only 29 percent of respondents described their health as fair, and 11 percent said their health was poor. About one-third of respondents had been hospitalized for at least one night in the last year, and 27 percent were on some kind of special diet. Despite their positive descriptions of their own health and their relatively low rate of hospitalization, 84 percent of respondents said they receive help with at least one independent living activity. Four-fifths said they receive help with housekeeping, laundry, grocery shopping, or heavy household chores. More than one-third also said they receive help with meals that are not covered by their Title III meals program, and one-quarter said they receive help with personal daily chores like bathing, dressing, and taking medications. About three-fifths of respondents said they receive help with only one or two of these activities, while almost a quarter said they receive help with three or more.

Once again, the summary figures for the entire respondent group tend to mask a few variations among the populations served by these three meal providers. For example, CAP clients described their health more positively than the other groups, with 70 percent describing their health as excellent or good. CAP clients were also more likely than the other groups to receive help with shopping and household chores, personal daily chores, and meals not provided by the meal programs. VOA clients, on the other hand, were more likely than the others to have been hospitalized overnight in the last year, but were otherwise similar to the others in their descriptions of their health and their use of help with activities of independent living. Presbyterian Homes clients were least likely to receive help with personal daily chores like bathing and dressing, a surprising finding given their higher numbers of challenges with ADLs as described above.

# Service effectiveness

Title III meal programs aim to achieve three central goals, according to federal guidelines. These include:

1. Reduce hunger and food insecurity
2. Promote socialization of older individuals (primarily applicable to congregate meals)
3. Promote the health and well-being of older individuals and delay adverse health conditions through access to nutrition and other disease prevention and health promotion services.

The Metropolitan Area Agency on Aging, as the administrator of Title III meal funds, has the authority to identify the specific objectives of HDM services and criteria in selecting HDM providers. MAAA priorities emphasize the provision of meals that meet the nutritional and cultural needs of seniors in greatest need of the nutrition assistance, as shown in the 2010 Senior Nutrition Services Request for Proposals:

---

> Home-Delivered Meals
>
> Provide high-quality nutritious meals to persons eligible for home delivered meals in the following geographic areas.
>
> — Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington Counties
>
> — No minimum service area required
>
> — Multi-county service areas permitted
>
> — No duplication of same-type meals in overlapping service areas
>
> Proposers may offer a proposal for one or more geographical areas. Please refer to Title III Service Data by Site Chart in Appendix A for more information.
>
> Provide a minimum of five meals per week to eligible persons. The frequency of the delivery of the meals (daily, weekly, or other frequency) should be based on the preferences of participants and a cost-benefit analysis of the options. The type of meal (hot or frozen) should be based on the preferences of participants and a cost-benefit analysis of the options.
>
> All meals must meet the U.S. Dietary Guidelines (www.healthierus.gov/dietaryguidelines/) and the Recommended Dietary Allowances (RDAs) and Adequate Intake (AI) for vitamins and elements for older adults who are 70+ years of age. Home-delivered meals must be served only to eligible older persons who are homebound and are unable to prepare their own nutritious meals without assistance. Each person requesting home-delivered meals must be assessed in person prior to or within 10 working days after the beginning of meal delivery. Reassessment shall occur as needed, but at least annually.

> Home-delivered meals should be targeted to individuals who are at high nutrition risk and have 2 or more limitations in Activities of Daily Living (ADLs: eating, drinking, dressing, personal hygiene, taking medication, walking and transferring). Individuals documented to be at high risk are eligible to receive meals seven days a week and/or second meals, based on approval by the MAAA.
>
> At a minimum, diabetic and no added salt diets (or modified meals) must be available. Providers will make special efforts to meet particular needs arising from health requirements, religious requirements, or ethnic backgrounds of eligible individuals. All menus must be reviewed and approved by a licensed dietitian/nutritionist.
>
> The MAAA allows the provision of cold entrees during the summer months; frozen meals for second meals (based on documented high nutrition risk status), weekend and holiday meals (based on participant needs by site); shelf stable meals for weather related or other emergencies; and delivery of meals with groceries and/or other needed goods, based on approval from the MAAA. In addition, service may be extended to people not eligible for Title III-reimbursed meals as a means to increase volume and reduce overall cost. Ineligible participants are expected to pay the full cost of the meal and service.
>
> Meals shall be served a minimum of 260 days per year with the exception of holidays as specified by the bidder. Holidays may include but are not limited to: New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving, and Christmas Day.

In this section, we evaluate the success of the Twin Cities Title III home-delivered meal program in reaching the goals as stated by the federal Agency on Aging and the Metropolitan Area Agency on Aging. In the process, we first identify the overall success of the program in achieving key outcomes. We then analyze any differences in outcomes by client demographics or health, and assess how effectively the meal programs serve those who need them most. Finally, we analyze each outcome by meal and delivery type, exploring whether there are any differences in participant outcomes between hot and frozen meal recipients or between clients with paid and volunteer deliverers.

It is important to note that socialization, though a goal of the senior nutrition program and an emphasis of the congregate dining model, is not emphasized by the Metropolitan Area Agency on Aging in its priorities for home-delivered meal services. The research literature, however, references benefits that recipients may derive from contact with and safety checks provided by those who deliver the meals. For this reason, the study analyzes the social impact of HDMs for their recipients, while acknowledging that meal providers are not obligated under contract to prioritize the socialization aspect in their HDM services.

## *Nutrition*

The literature illustrates the challenges of proving the nutritional impact of HDMs because holding all other factors constant is extremely difficult. Because of this challenge and

because the nutritional content of meals is assumed to meet the national standard of 33 percent of Recommended Daily Intake (RDI), many researchers rely on proxies like meal consumption and participant satisfaction to evaluate the nutritional impact of HDMs on participants. We take this approach in this section, describing client responses to questions about their consumption of the meals, satisfaction with the meals, and outcomes as a result of the meals.

### Meal consumption

*Key findings:*

- Four-fifths (83%) of clients said they had eaten at least most of their most recent home-delivered meal.

- Those least likely to say they had eaten all of their most recent home-delivered meal were clients in relatively poor health (high nutritional risk, one or more ADL challenges, two or more IADL challenges), clients with low incomes, and female clients.

- There were no significant differences in meal consumption by meal type or delivery type, even when controlling for health and demographic factors.

When asked about the most recent home-delivered meal they received, the majority of respondents (55%) said they ate all of the meal, and another 28 percent said they ate most of it. Only 13 percent said they ate some of the meal, and 3 percent said they ate only a little or none of it. Meal consumption was similar between different age and racial groups, but differed significantly by gender and income (Table A6 in Appendix III). Men were more likely than women to report eating all of the meal, while women were more likely to report eating most or some of it. Interestingly, the likelihood of consuming all of the meal increased with higher incomes; while only 46 percent of recipients living below the poverty line ate all of their most recent home-delivered meal, three-quarters of recipients with incomes above 200 percent of the poverty line ate all of it.

As shown in Table A7 in Appendix III, respondents at high nutritional risk were significantly less likely than those at low or medium nutritional risk to report having eaten all of their most recent home-delivered meal; while 68% of low- or medium-risk recipients ate all of the meal, only 45% of high-risk recipients ate all of the meal. Consistent with this pattern, clients who need no help with the Activities of Daily Living (ADLs) were more likely to have eaten all or most of the meal than those who need help with one or more ADL . The same applies to the Independent Activities of Daily Living (IADLs); those clients who need help with fewer than two IADLs appear more likely to say they had eaten all of the meal. This result could simply reflect lower appetites or greater popularity of saving

meals for later among those at high nutritional risk and low functional ability, or it could indicate that the appeal of the meals is lower to those at higher nutritional risk and lower functional ability. We will therefore pay close attention to this population in the meal satisfaction section that follows.

There were no notable patterns in meal consumption by meal type or by the number of meals received per week, even when controlling for demographics and health.

**5. What did you do with (the rest of) the meal?**

| | Threw it away | Saved it for later | Other | N |
|---|---|---|---|---|
| Hot* | 24% | 65% | 10% | 49 |
| Frozen* | 61% | 29% | 11% | 28 |
| Total | 38% | 52% | 10% | 77 |

*Note:* * statistically significant (at the 5% level) difference within the category.

Of those respondents who had eaten less than all of their most recent home-delivered meal, most (52%) had saved the uneaten portion for later, while 38% had thrown it away, and 10% had given it to someone else or done something else with it. There were no significant differences between demographic groups in what clients did with their uneaten meals. There was, however, a significant difference by meal type (Table 5), as hot meal recipients were more likely than frozen meal recipients to save their uneaten meals for later (65 percent compared to 29 percent). Frozen meal recipients, meanwhile, were more likely to throw their uneaten meals away (61percent compared to 24 percent). In other words, hot and frozen meal recipients had generally eaten roughly the same proportion of their most recent home-delivered meal at the time of the interview, but hot meal recipients were much more likely to have saved the rest for later consumption. This might indicate that hot meal recipients tend to eat a larger share of their meals in the end.

## Meal satisfaction

The literature suggests that clients who are more satisfied with the quality of their meals are more likely to eat a larger share of the meals, thereby absorbing a greater proportion of the nutritional value contained within. To determine client satisfaction, we asked clients to rate the variety, nutritional value, taste, and appearance of their home-delivered meals as excellent, good, fair, or poor.

### Overall meal satisfaction

Overall satisfaction with the meals was high, with an average of 87 percent of respondents reporting that their meals were "good" or "excellent" in variety, nutritional value, taste, and appearance (Table 6). Respondents gave the highest ratings for nutritional value (which more than a third of respondents described as "excellent") and gave the lowest marks for taste (which more than one-fifth described as "fair" or "poor"). Only one percent of respondents described their meals as "poor" by these measures.

**6. Satisfaction with meals**

| | Excellent | Good | Fair | Poor | N |
|---|---|---|---|---|---|
| Variety | 33% | 53% | 13% | 1% | 174 |
| Nutritional Value | 35% | 55% | 8% | 1% | 167 |
| Taste | 22% | 58% | 19% | 2% | 172 |
| Appearance | 29% | 61% | 10% | - | 173 |
| Average | 30% | 57% | 13% | 1% | |

### Meal satisfaction by demographics and health

*Key findings:*

- There were no significant differences in meal satisfaction by race, sex, or age.
- Meal taste was rated most favorably among clients with incomes below 200 percent of the poverty line.
- Overall, meals were rated most favorably (especially nutritional value, taste, and appearance) among those in the best health, while those in worse health were less satisfied with the meals.

There were no significant differences in meal satisfaction by race, sex, or age, though meal recipients under the age of 75 appear to express less favorable opinions of meal taste than those over age 75 (Table A8 in Appendix III).There were also no differences in perceived variety, nutritional value, or appearance by income, but there was a significant difference in perceived taste. Recipients with incomes below 200 percent of the poverty line were significantly more likely than those with higher incomes to describe the taste of the meals as "good" or "excellent". In addition, there were no significant differences in meal satisfaction by race, though there is some evidence that perceived variety may have been better among nonwhite clients than among white clients. While the small difference

does not support an assertion that nonwhite clients were more satisfied, these findings indicate that nonwhite clients were (at worst) as satisfied with their meals as white clients.

When meal satisfaction is evaluated by different measures of recipient health (Table A9 in Appendix III), there is an apparent and significant trend of (self-described) healthier individuals rating the meals more positively. This is true across the four measures, but is particularly significant in the cases of taste and appearance, which 85 percent and 95 percent (for taste and appearance, respectively) of respondents in "excellent" or "good" health described favorably, compared to 72 percent and 84 percent of respondents in "fair" or "poor" health. Looking at more objective measures of respondent health, the results are less clear. Those at high risk rated the meal variety somewhat higher than lower-risk clients, but they rated nutritional value slightly lower. These differences do not appear significant enough to cause the relatively wide consumption gap described above.

Clients with more ADL challenges also described the nutritional value and appearance of the meals significantly less favorably than those with fewer challenges. Ratings of variety and taste were also slightly lower among those with more ADL challenges. The same pattern emerges with IADLs, as clients with more challenges tended to rate the meal attributes less favorably. Overall, meals were rated most favorably among those in the best health, while those in worse health were less satisfied with the meals.

### Meal satisfaction by meal type

*Key findings:*

- Of the rated meal attributes, the only variation by meal type was in perceived nutritional value, with 94 percent of hot meal recipients rating the nutritional value as "good" or "excellent," compared to 83 percent of frozen meal recipients.
- When controlling for various demographic and health characteristics, several groups of respondents were especially likely to rate hot meals more favorably than frozen meals, including:
  - Older clients
  - Higher-income clients
  - Clients at low or medium nutritional risk (though high-risk clients also rated the nutritional value of hot meals more favorably than frozen meals)
- On a similar note, younger, lower-income, and high-risk clients were generally more likely than their counterparts to rate hot meals and frozen meals comparably.

- All caterers received average ratings of 85% or higher across the categories of variety, nutritional value, taste, and appearance. St. Olaf Nursing Home and the caterers in the grouped "Other" category (Shalom Home, Talheim, Walker, and Redeemer) had the highest average ratings of 91 percent and 93 percent, respectively.

### 7. Meal satisfaction by meal type

| | | Variety | Nutritional value | Taste | Appearance | N |
|---|---|---|---|---|---|---|
| Meal type | Hot | 88% | 94%* | 83% | 92% | 112 |
| | Frozen | 84% | 83%* | 72% | 87% | 62 |
| # Meals received per week | 1-3 | 81% | 84% | 72% | 85% | 33 |
| | 4-6 | 88% | 92% | 81% | 92% | 104 |
| | 7+ | 89% | 95% | 81% | 92% | 37 |
| Delivery type | Volunteer | 84% | 92% | 77% | 92% | 106 |
| | Paid | 92% | 83% | 80% | 85% | 48 |
| Total | | 87% | 90% | 78% | 90% | |

*Notes:* *Reported percentages are the percentage of respondents who replied "Excellent" or "Good" for each measure of meal quality.*

** Statistically significant (at the 5% level) difference within the category.*

Looking now at meal satisfaction by the meal and delivery type, some interesting patterns emerge (Table 7). There were no (statistically) significant differences in perceptions by the number of meals received per week, though there is an evident pattern of more positive ratings among those who receive more meals per week. In particular, those who receive four or more meals per week tended to rate their meals more positively than those who receive fewer than four meals per week. This might indicate that those who receive more meals were in greater need and therefore felt more positively about them, or it might simply reflect that those with lower opinions of the meals choose to receive fewer of them. Either way, this finding indicates that, while 86 percent of *clients* said that their meals were excellent or good by these measures, the percentage of *meals* that are rated as "good" or "excellent" by their recipients would be higher still.

Between meal types, most observed differences are not statistically significant, though there is an apparent pattern of higher ratings for hot meals. Of the rated meal attributes, the only significant gap in ratings is in perceived nutritional value, which 94 percent of hot meal recipients described as "good" or "excellent" compared to 83 percent of frozen meal recipients. There is also some evidence that hot meal recipients rated the meal taste more favorably than recipients of frozen meals (83 percent compared to 72 percent), but this difference falls short of statistical significance. While there is no significant difference

in perceived variety by meal type, there is some evidence that "excellent" variety may be more common among frozen meals; 37 percent of frozen meal recipients described the meal variety as "excellent," compared to 31 percent of hot meal recipients.

Given the apparent differences in the populations served by the two meal types,[9] it is important to ensure that the findings take into account these differing characteristics and how they might affect client perceptions. To do so, we examine the different levels of client satisfaction between hot and frozen meal recipients within certain groups (age, nutritional risk, overall health, ADLs, IADLs, and income) to control for each of these variables individually. Disaggregating an already relatively small sample in this way means that many of the apparent differences in meal satisfaction are not statistically significant, but Table 8 illustrates several notable differences in meal satisfaction by meal type that were otherwise hidden by these other factors, while adding further definition to some patterns observed previously.

[9] The greater effort required to heat one's own meals suggests that frozen meal recipients may be younger and have greater functional ability than hot meal recipients, and these differences are evident to some extent in the demographic and health summary of the providers (Presbyterian Homes serves all but one of the frozen meal recipients in this sample, and also serves the youngest population).

## 8. Meal satisfaction by meal type, demographics, and health

| | | Variety | | Nutritional Value | | Taste | | Appearance | | N |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Hot | Frozen | Hot | Frozen | Hot | Frozen | Hot | Frozen | |
| Age | Under 65 | 71% | 100% | 100% | 86% | 71% | 71% | 100% | 86% | 14 |
| | 65-74 | 85% | 88% | 89% | 87% | 70% | 69% | 90% | 100% | 36 |
| | 75-84 | 87% | 94% | 95% | 93% | 89% | 81% | 92% | 88% | 56 |
| | 85 and over | 93%* | 68%* | 96%* | 71%* | 85% | 68% | 91% | 76% | 69 |
| Income | Below poverty line | 86% | 86% | 94% | 85% | 83% | 81% | 92% | 95% | 57 |
| | Between 100-200% of poverty line | 87% | 76% | 94% | 82% | 84% | 76% | 90% | 82% | 69 |
| | Above 200% of poverty line | 100% | 92% | 100% | 73% | 78% | 45% | 100% | 75% | 22 |
| Self-reported health | Excellent or Good | 94% | 86% | 98%* | 85%* | 86% | 83% | 97% | 91% | 101 |
| | Fair or Poor | 82% | 84% | 91% | 78% | 79% | 60% | 87% | 80% | 70 |
| Number of ADL challenges | 0 | 91% | 85% | 98% | 87% | 84% | 65% | 95% | 84% | 85 |
| | 1 | 81% | 84% | 96% | 80% | 81% | 80% | 93% | 92% | 52 |
| | 2+ | 87% | 67% | 77% | 67% | 80% | 33% | 73% | 33% | 18 |
| Number of IADL challenges | 0-1 | 92% | 88% | 100% | 75% | 92% | 88% | 100% | 88% | 21 |
| | 2-4 | 89% | 85% | 95% | 92% | 84% | 81% | 92% | 92% | 65 |
| | 5-8 | 81% | 80% | 93% | 70% | 81% | 60% | 88% | 80% | 53 |
| Nutritional risk | Low | 93%* | 25%* | 100% | 67% | 93% | 50% | 100% | 67% | 19 |
| | Medium | 87% | 70% | 97% | 88% | 77% | 70% | 87% | 70% | 41 |
| | High | 89% | 92% | 94%* | 81%* | 85% | 73% | 93% | 92% | 94 |
| Total | | 88% | 83% | 94% | 82% | 82% | 71% | 92% | 86% | 175 |

*Notes:* *Reported percentages are the percentage of respondents who replied "Excellent" or "Good" for each measure of meal quality.*

** Statistically significant (at the 5% level) difference within the category.*

Looking first at meal satisfaction by age, the difference in satisfaction between hot and frozen meals is strongest within the 85+ age group, with large and significant gaps in perceived variety and nutritional value. Ninety-three percent of hot meal recipients in this age group described their meal variety as "good" or "excellent," compared to 68 percent of frozen meal recipients. A similar gap appears in the case of perceived nutritional value, which 96 percent of hot meal recipients rated as "good" or "excellent," compared to 71 percent of frozen meal recipients. The 85+ age group also described the taste and appearance of hot meals more positively than frozen meals (with gaps of 15-17 percentage points). Within the other age groups, there were no significant differences in meal satisfaction between meal types, though it is worth noting that within the (very small) "Under 65" age group, all frozen meal clients described their meal variety as "good" or "excellent," compared to only 71 percent of hot meal recipients.

Controlling for income, the satisfaction gap is most apparent among higher income groups. In fact, the gaps in ratings of nutritional value, taste, and appearance all widen with each increase in income range. In other words, overall, higher-income clients tend to more strongly prefer hot meals, while clients with incomes below the poverty line show almost no difference in ratings between hot and frozen meals (except for a small differential in perceived nutritional value).

When controlling for self-described health, few significant differences emerge, but hot meals are again rated consistently higher than frozen meals by their recipients. While the only significant gap is in perceived nutritional value among those who describe their health as excellent or good (98 percent versus 85 percent positive ratings for hot and frozen meal recipients, respectively), the noticeable but statistically insignificant gap in taste ratings among those with "fair" or "poor" health is also worthy of note. Almost four-fifths of hot meal recipients in "fair" or "poor" health described their meals' taste positively, compared to three-fifths of frozen meal recipients in "fair" or "poor" health. In addition, holding constant the respondents' ability to manage their ADLs and IADLs, the difference in ratings tends to be largest among those with the most functional limitations (those who require help with five or more IADLs and those who require help with two or more ADLs). Though most of these gaps fall short of statistical significance, these clients (in poor health and with more functional limitations) may be of particular interest due to their greater need for nutrition assistance to improve their health.

In contrast, when controlling for nutritional risk, the more vulnerable population exhibits almost no difference in perceived quality between hot and frozen meals. Across all measures, the gaps between hot and frozen meal satisfaction are largest within the relatively small group at low nutritional risk. Within this group, hot meal recipients were significantly more likely to rate their meal variety as "good" or "excellent" (93 percent compared to 25 percent), and also appear to have rated nutritional value, meal taste, and

meal appearance more positively. These differences are much smaller among clients at medium nutritional risk, but even in this group, there are some notable (17 percentage point) gaps in perceived variety and meal appearance between hot and frozen meals. For clients at high nutritional risk, ratings of nutritional value were significantly higher among hot meal recipients (94%) than among frozen meal recipients (81%), but there were no notable differences in the other quality measures.[10] High-risk clients rated the variety and appearance of hot and frozen meals equally, and there was only a small difference in taste ratings between the meal types.

In sum, older clients, clients with higher incomes, and clients at lower nutritional risk were more likely to rate hot meals more favorably than frozen meals. On the other hand, younger, lower-income, high-risk clients were more likely to show small or no differences in ratings between the meal types, an important conclusion as these represent both the likely preferences of future recipients (today's younger clients) and also the program's targeted clientele (low-income, high-risk individuals). In other words, though these findings do suggest that many client groups tend to rate hot meals more positively than frozen meals, the evidence suggests that this difference is much smaller among some of the program's targeted clientele and will likely decline over time as the population of meal recipients changes.

### Meal satisfaction by caterer

Finally, comparing meal satisfaction across the caterers who supply the meals (Table A10 in Appendix III), ratings were fairly consistent, with all caterers receiving an average rating of 85% or greater across the categories. St. Olaf Nursing Home and the caterers in the grouped "Other" category (Shalom Home, Talheim, Walker, and Redeemer) had the highest average ratings of 91 percent and 93 percent, respectively. Within the taste and appearance categories, there were no significant differences in satisfaction by caterer, but there were notable differences in variety and nutritional value. Augustana's clients rated their meal variety significantly lower than other clients, while Presbyterian Homes Commissary clients rated the nutritional value of their meals significantly lower than other clients. There were no other significant differences in meal satisfaction across caterers.

[10] Recall from above that high-risk clients were less likely than others to have eaten all of their most recent home-delivered meal, so improving meal satisfaction for these clients might improve meal consumption (thereby improving nutrient intake for those who need it most).

### Health outcomes

*Key findings:*

- One-third of clients reported noticing a change in their health since starting to receive home-delivered meals, and three-quarters said they would eat less well without the service.
- Reported health changes include increased food and nutrient intake, beneficial weight effects (gain, loss, or stabilization), and other specific health outcomes like improved blood pressure and increased energy.
- Younger clients, clients with incomes below the poverty line, and clients at high nutritional risk were most likely to have noticed a change in their health since starting to receive home-delivered meals.
- Hot meal recipients (especially clients of color and clients in relatively good health) were significantly more likely than frozen meal recipients to say they would eat less well without their home-delivered meal service.

With 90 percent of clients describing the nutritional value of the meals as "good" or "excellent" and with 83 percent of clients reporting that they ate at least most of their most recent home-delivered meal, it is reasonable to expect some observable health outcomes from the meal service. Conducting an objective assessment of nutrition outcomes (like the studies cited in Appendix I) is a daunting task that is well beyond the scope of this study, but self-reported outcomes are a reasonable proxy. About one-third of respondents (32%) said they had noticed a change in their health since they started receiving home-delivered meals.

The most commonly cited change in health was an increase in food or nutrient intake, which was mentioned by 31 percent of those respondents who had noticed a change in their health. Here are some of the things that respondents said about their increased nutrient intake:

> I'm getting all my nutrition I'm supposed to get now.
>
> I don't get hungry as often. I get a better variety of food. They are friendly and good to me and I appreciate it.
>
> I'm eating. I'm not skipping. I eat every meal they bring.

The next most commonly cited change in health, claimed by one-quarter of respondents, was related to beneficial weight effects (weight gain, loss, or stabilization).

> When I first started the [doctor] recommended [the meal program]. At that time I was 135 lbs. Now I'm 155 lbs. It has increased my body and my well-being. Soon I may be able to do my own cooking. I'm eating better and I am healthier.
>
> The doctor seems to think [that my health has improved]. My weight has stabilized and the doctor is happy.

Respondents also noted other positive health changes like increased energy and improved blood pressure (20%)

> I am on a salt free diet and my doctor was tickled to death with my blood pressure and my ankles are not swollen anymore.
>
> I feel stronger, better, not so weak.

Finally, several respondents (16%) also made general comments about the positive health impact. For example:

> I'm healthy. The quality of my life – I've had five surgeries and having that noon meal contributes to my good health.

There was no significant difference in the level of perceived health changes between hot and frozen meal recipients (see Table 9). While the small sample sizes limit statistical significance in the open-ended responses, there were a couple of notable differences in the cited health outcomes by meal type. Frozen meal recipients appear more likely to report beneficial weight effects (weight gain, loss, or stabilization), as 35 percent of frozen meal recipients mentioned this outcome, compared to 21 percent of hot meal recipients. Frozen meal recipients were also more likely to mention their increased food or nutrient intake (41 percent, compared to 26 percent of hot meal recipients).

Hot meal recipients, on the other hand, mentioned a couple of themes that did not come up among frozen meal recipients. Twelve percent of hot meal recipients who had noticed a health change referred to the peace of mind or reduced stress due to the knowledge that their meals are taken care of:

> I am more at ease, more peace of mind, not having to prepare meals three times a day for the two of us.
>
> I don't worry about what or who will make food for me every day so it makes less stress for me and makes my health become better.

In addition, 9 percent of hot meal recipients who had noticed a health change commented on the greater variety in their diet.

While only one-third of clients reported noticing a change in their heath since beginning their home-delivered meal service, three-quarters (74%) said they definitely or probably would eat less well than they do now if they did not have this home-delivered meal service (Table A11 in Appendix III). Clients under 65 surprisingly appear more likely than the older groups to say that they would eat less well without the home-delivered meals service (93 percent compared to 72 percent). In addition, younger clients were significantly more likely to have observed changes in their health since initiating the home-delivered meals service; clients under 75 were nearly twice as likely as clients age 75 and older to report noticing changes in their health (48 percent versus 25 percent).

Clients with incomes below the poverty line were significantly more likely than those with higher incomes to say that they had noticed a change in their health since receiving home-delivered meals. While half of respondents with incomes below the poverty line had noticed a change in their health, only 22 percent of those with incomes above the poverty line had noticed a change. Men and women were equally likely to have observed changes in their health since starting home-delivered meals, but women appear more likely than men to say they would eat less well without the meals. There were no significant racial differences in outcomes by either measure, though nonwhite clients appear slightly more likely to report changes in their health.

Looking now at these outcomes by the respondents' health status (Table A12 in Appendix III), there is some evidence that the meals service might have a greater impact on those in worse health. Clients at high nutritional risk reported observing changes in their health at a significantly higher rate (39%) than those at lower risk (21%). Clients at low nutritional risk also appear less likely than higher-risk clients to say they would eat less well without the meal service. There is some evidence that people who describe their health as "fair" or "poor" are also more likely than healthier clients to report changes in their health (39 percent versus 28 percent) and to say they would eat less well without the meal service (80 percent versus 70 percent). There is little evidence, however, that those with more limitations in terms of ADLs and IADLs are more likely to report observed changes in their health or to say that they would eat less well without the meals service.

Once again, it appears that the meal programs have the greatest impact on those that they are most targeted to: low-income, high-risk clients. There is also some evidence that they have greater impacts on nonwhite clients and those who describe their health as "fair" or "poor."

## 9. Health impacts by meal type

| | | Have you noticed any changes in your health since you started receiving home-delivered meals? | | If I did not have this home-delivered meals service... I would eat less well than I do now | | |
|---|---|---|---|---|---|---|
| | | Yes | No | Definitely or probably yes | Probably or definitely not | N |
| Meal type | Hot | 33% | 67% | 81%* | 19% | 110 |
| | Frozen | 30% | 70% | 61%* | 39% | 60 |
| # Meals received per week | 1-3 | 14%* | 86% | 70% | 30% | 30 |
| | 4-6 | 33%* | 67% | 76% | 24% | 101 |
| | 7+ | 46%* | 54% | 70% | 30% | 37 |
| Total | | 26% | 74% | 79% | 21% | 104 |

** Statistically significant (at the 5% level) difference within the category.*

Finally, when comparing outcomes by meal type and quantity (Table 9), clients who received more meals were more likely to notice changes in their health. Those clients who received 4-6 and especially 7+ meals per week were significantly more likely than those who received 1-3 meals per week to say they had noticed a change in their health. This unsurprising result is nonetheless encouraging, as it suggests that the health impact of the meals increased with the number of meals served, providing stronger evidence that the meals themselves may cause the positive health outcomes.

In addition, hot meal recipients were significantly more likely than frozen meal recipients to say they would eat less well without their meal service (81 percent compared to 61 percent), though there was only a small difference in the rate of observed health changes between meal types. This result indicates that recipients of hot meals may see themselves as more reliant on the meal service for their nutrition.

Controlling for demographic and health characteristics, we still observe no significant differences by meal type in the percentage of clients who had noticed changes in their health since receiving home-delivered meals. These controls do, however, allow us to observe several groups in which there were particularly significant differences between hot and frozen meals in the percentage of clients who said they would eat less well if they did not have the meal service. As shown in Table A13 in Appendix III, hot meal recipients are significantly more likely than frozen meal recipients to say they would eat less well without the meal service among female clients, clients of color, clients in excellent or good (self-described) health, clients at low nutritional risk, clients with zero ADL challenges, clients with 2-4 IADL challenges, and clients between the ages of 65 and 74.

In essence, the gap between hot and frozen meals is generally most significant among those whose health indicates a lower need for the service (zero ADL challenges, low nutritional risk, excellent or good health), though the gap is also significant among clients with multiple IADL challenges. This gap is still apparent, however, across nearly all groups, even though is not always statistically significant. Overall, these results suggest that hot meal recipients were more likely than frozen meal recipients to say they eat better as a result of participating in the program, though the pattern is more significant among those in relatively better health.

In addition, the gap is very large among clients of color. It may be concerning that, among clients of color, hot meal recipients are significantly more likely than frozen meal recipients to say they eat better with the meal service, especially because none of the 22 clients of color who receive frozen meals said they would eat less well without the meal service.

## Nutrition outcomes in summary

### What is the overall nutritional impact?

Overall, the impact of the home-delivered meals program on participant nutrition outcomes appears to be overwhelmingly positive. Satisfaction with the meals was very high, with an average of 87 percent of respondents reporting that their meals were "good" or "excellent" in variety, nutritional value, taste, and appearance. As a result, 83 percent said they had eaten all or most of their most recent home-delivered meal. Three-quarters said they would eat less well without their meal service, and one-third had noticed a change in their health since starting to receive home-delivered meals. Reported health changes include increased food and nutrient intake, beneficial weight effects (gain, loss, or stabilization), and other specific health outcomes like improved blood pressure and increased energy.

### Who is most strongly impacted?

In general, clients with lowest incomes and those in poorer health reported stronger health outcomes than others.

Low-income clients were very satisfied with their meals, and tended to rate the meals (especially meal taste) more favorably than clients with incomes above 200 percent of the poverty line. While low-income clients were less likely than higher-income clients to have eaten all of their most recent home-delivered meal, they were also more likely to have noticed a change in their health since starting to receive home-delivered meals. It seems that these clients might have smaller appetites, but the health impacts of the meal programs were especially apparent among them.

The results for clients in poor health are also encouraging but slightly less so. Clients in poor health were less likely to have eaten all of their most recent home-delivered meal, and in general, clients in poor health tended to rate their home-delivered meals less favorably than those in better health. Nonetheless, clients in poor health were more likely than others to have noticed a change in their health since starting to receive home-delivered meals. It appears, therefore, that meal programs might set goals to improve their meals' appeal to clients in poor health, and to increase consumption rates among low-income and less healthy clients. That said, these clients appear to have noticed health outcomes at higher rates than other clients, suggesting that the impact of the meals was strong despite their lower ratings of the meals.

**Which meal type has stronger outcomes, and among whom?**

Hot meal recipients and frozen meal recipients had eaten roughly the same portion of their most recent home-delivered meal at the time of the interview, but among those who did not eat the whole meal, hot meal recipients were more likely to have saved a portion of the meal to eat later, suggesting that hot meal recipients might have eaten a larger portion of the meal in the end.

Meal satisfaction was at least somewhat higher among hot meal recipients than among frozen meal recipients across all measures of meal satisfaction, though this difference was only statistically significant in the case of perceived nutritional value. When we control for demographics and health characteristics, the largest differences in satisfaction occurred among older clients, higher-income clients, and clients at low or medium nutritional risk. In fact, clients with lower incomes and high nutritional risk tended to rate hot meals and frozen meals comparably. Among these target groups, there were very few significant differences by meal type. The same was true of those clients who said they would eat less well without the home-delivered meal service: while hot meal clients were significantly more likely to say they would eat less well without the service,[11] this pattern was strongest among those in relatively better health.

As a whole, these findings tend to indicate that hot meals lead to stronger nutritional outcomes, to the extent that we can measure them. However, it is important to note that many of these differences in outcomes are minimal or nonexistent among clients with lower incomes and poorer health. Furthermore, younger clients tended to rate hot and

[11] Based on a concern that this relationship might simply reflect a greater ability to manage one's own meals among frozen meal recipients, we investigated further to find that this relationship is actually *strongest* among those who say they could manage their own meals. Of those who say they could manage their meals okay on their own, 44 percent of frozen meal recipients and 84 percent of hot meal recipients said they would eat less well without the meal service. On the other hand, among those who said they could *not* manage their meals on their own, hot and frozen meal recipients were equally likely to say they would eat less well without the meal service.

frozen programs and their nutritional outcomes similarly. The satisfaction ratings between the meal types might therefore equalize over time, as today's younger clients age and their preferences become dominant in the client population. As a result, we conclude that the decision to shift resources toward frozen meals has had little or no negative impact on client nutrition.

## *Independent living*

*Key findings:*

- More than one-quarter of respondents said they could not manage their meals on their own or get help with their meals from a family member or friend.
- More than two-fifths (21%) of respondents said they would probably or definitely have to go live somewhere else if they did not have their home-delivered meals service, and nearly half (46%) said it would be hard to stay where they are living now.
- Women, white clients, and clients with incomes below the poverty line were more likely than others to say they would be unable to manage their meals on their home or with the help of a family member or friend if they did not have the meal service.
- White clients, clients age 85 and up, and clients with incomes below the poverty line were more likely than others to say they would have a hard time living where they live now or would have to go live somewhere else without the meal service.
- As expected, clients in worse health were generally less likely than clients in better health to have a way to manage their meals and more likely to say that it would be difficult to continue living independently without the meal service.
- There were no significant differences in the impact of HDMs on independent living between hot and frozen meal recipients, and controlling for health and demographic characteristics revealed no consistent patterns in impact by meal type.

A central goal of home-delivered meal programs is to enable homebound seniors to continue living independently despite their limited functional ability. Survey results suggest that many recipients do not feel that they need the home-delivered meals in order to eat regularly or stay in their homes. More than half of respondents said they could manage their daily meals okay on their own if they did not have the home-delivered meals service, and two-fifths said they could get help with their daily meals from a family member or friend. In total, nearly three-quarters (73%) of respondents said they could manage their meals on their own or get assistance with them.

## 10. Impact of meal service on independent living

| If I did not have this home-delivered meals service… | Definitely yes | Probably yes | Probably not | Definitely not | N |
|---|---|---|---|---|---|
| I could manage my daily meals okay on my own. | 16% | 42% | 26% | 16% | 173 |
| I could get help with my daily meals from a family member or a friend. | 18% | 24% | 29% | 29% | 170 |
| It would be hard to stay where I am living now. | 17% | 29% | 34% | 20% | 160 |
| I would have to go live somewhere else. | 4% | 17% | 34% | 45% | 166 |

Of course, this means that 27 percent of respondents would have no way to manage their meals without their home-delivered meal service. More than two-fifths (21%) of respondents said they would probably or definitely have to go live somewhere else if they did not have their home-delivered meal service, and nearly half (46%) said it would be hard to stay where they are living now. Bear in mind that underestimation of need and overestimation of ability could be at play in these statistics, with a population that may not recognize their declining functional ability. While it appears that many recipients of home-delivered meals do not believe the service is crucial to their ability to eat regularly and continue living in their homes, many other recipients acknowledged that they really do need this service to live independently and eat well.

Some groups of respondents were more likely than others to acknowledge the impact of their home-delivered meal service on their ability to continue living independently (Table 11). Nonwhite respondents were generally more likely than white respondents to have an alternative way to manage their meals aside from the meal program; while 38 percent of white respondents said they could get help with their meals from a family member or friend, the rate among respondents of color was 57 percent. In addition, there seems to be a fairly consistent pattern that respondents with incomes below the poverty line were less likely than others to say they could manage their meals on their own (46 percent versus 65 percent) or with the help of family member or friend (35 percent versus 45 percent). Men also appear more likely than women to say they could manage their meals on their own or get help with their meals from a family member or friend, and older respondents were more likely than younger ones to say they could get help with their daily meals from a family member or friend.

## 11. Impact on independent living by demographics

| | | If I did not have this home-delivered meals service… | | | | |
|---|---|---|---|---|---|---|
| | | I could manage my daily meals okay on my own. | I could get help with my daily meals from a family member or a friend. | It would be hard to stay where I am living now. | I would have to go live somewhere else. | N |
| Income | Below poverty line | 46%* | 35% | 56% | 19% | 56 |
| | Between 100-200% of poverty line | 64%* | 49% | 38% | 25% | 67 |
| | Above 200% of poverty line | 68%* | 43% | 42% | 15% | 22 |
| Age | Under 65 | 43% | 7%* | 36% | 8%* | 14 |
| | 65-74 | 67% | 39%* | 40% | 26%* | 36 |
| | 75-84 | 63% | 35%* | 49% | 12%* | 54 |
| | 85 and over | 52% | 56%* | 49% | 29%* | 69 |
| Race | White | 57% | 38% | 48% | 22% | 142 |
| | Nonwhite | 61% | 57% | 36% | 19% | 28 |
| Sex | Female | 53% | 37% | 48% | 21% | 110 |
| | Male | 67% | 51% | 43% | 21% | 63 |

*Note:* *Reported percentages are the percentage of respondents who replied "definitely yes" or "probably yes" for each statement.*

** Statistically significant (at the 5% level) difference within the category.*

White respondents appear more likely than respondents of color to say it would be difficult for them to continue living in their current residence without the meal service (48 percent compared to 36 percent).Clients with incomes below the poverty line also appear more likely to say it would be difficult to stay where they are living now (56 percent versus 39 percent). Unsurprisingly, respondents age 85 and older were more likely than younger respondents to say that they would probably or definitely have to go live somewhere else if they did not have this meal service, (29 percent of respondents age 85+, compared to 16 percent of others). Younger respondents also appear less likely to say it would be difficult to stay where they are living now without the meal service. In sum, clients who are low-income, white, female, and older were more likely to acknowledge the positive impact of home-delivered meals on their ability to eat regularly and continue living independently.

As expected, clients in worse health were generally less likely than clients in better health to have a way to manage their meals and were more likely to say that it would be difficult

to continue living independently without the meal service (Table A14 in Appendix III).[12] This pattern emerges in some form across all measures of health, including self-reported general health, nutritional risk, ADLs, and IADLs, and many of these relationships are statistically significant. While expected, this set of results is encouraging in that it illustrates that the meal service is indeed providing a necessary and useful service for those who need it most.

Unsurprisingly, those who receive more meals per week were less likely to say they could get help with their daily meals from a family member or friend and also appear less likely to say that they could manage their daily meals on their own. There were no significant differences in the impact of HDMs on independent living between hot and frozen meal recipients or between recipients of paid versus volunteer deliverers (Table A15 in Appendix III).

Consistent with the lack of an evident overall relationship between meal type and the impact of HDMs on independent living, controlling for health and demographic factors reveals only a few groups in which meal type relates to the impact of HDMs on independent living, and the relationship varies in nature. As shown in Table A16 in Appendix III, some groups of respondents were more likely to emphasize the impact of hot meals on independent living, while other groups suggested that frozen meals had a stronger impact on respondents' ability to continue managing their meals and living independently.

Among respondents age 75-84, frozen meal recipients were more likely than hot meal recipients to say they could manage their meals on their own. Frozen meal recipients in this age range also appear more likely to say they could get help with their meals from a family member or friend. On the other hand, among respondents age 65-74, hot meal recipients were significantly more likely to say they could get help with their meals from a family member or friend. This was also true for respondents at high nutritional risk. In other words, frozen meals may be less crucial to independent meal management for respondents age 75-84, but they may be more important for independent meal management among high-risk clients and clients age 65-74. There were no other significant or notable differences by income, general health, or functional ability.

As for differences in the impact on the clients' ability to continue living independently, there were no significant differences between meal types when controlling for age, general health, nutritional risk, or functional ability. Controlling for income, however, we once again note some conflicting results between different groups. Among respondents with incomes between 100 and 200 percent of the poverty line, frozen meal recipients

[12] The only exception is in the case of having a friend or family member who could help with meals, to which clients with five or more IADL challenges were significantly more likely to say "probably yes" or "definitely yes."

were significantly more likely to say that it would be hard to continue living where they are living now without their meal service. Among respondents with incomes greater than 200 percent of the poverty line, hot meal recipients were significantly more likely to say they would have to go live somewhere else without the meal service. In other words, hot meals may better enable independent living among higher-income clients, while frozen meals may be more instrumental to independent living among mid-income clients. Controlling for demographics and health reveals no broader differences in the impact of the two meal types on meal management and independent living.

In sum, just over one-quarter of respondents said they would be unable to manage their meals on their own or get help with their meals from a family or friend if they did not have the meal service. Nearly half said it would be hard to stay where they live now without the meal service, and one-fifth said they would have to go live somewhere else. In general, clients who are female, older, white, low-income, and less healthy were more likely than their counterparts to suggest that the meal service enables them to remain in their homes or continue eating regularly.

There were no significant differences in the impact on independent living by meal type overall, and when controlling for demographics and health characteristics, the differences between hot and frozen meals were mixed and inconclusive. We conclude, therefore, that hot and frozen meals contribute equally to clients' ability to continue managing their meals and living independently.

## *Social contact and safety check-ins*

Proponents of hot meal delivery emphasize the value of the daily check-in on weekdays, both for the social interaction and for the prompt detection of an emergency situation when a recipient appears unwell or does not answer the door. Though this social aspect of meal delivery was not prioritized by the Metropolitan Area Agency on Aging in their 2010 criteria for meal provider selection, brief contact with meal deliverers and the safety check-in have been emphasized as an integral component of home-delivered meal programs by many meal providers, deliverers, and recipients. This section evaluates clients' current levels of social contact, the social impact of their HDM service, and client perceptions of the importance of the safety check-in.

### Social contact

*Key findings:*

- More than one-quarter (29%) of clients have contact with friends or family members twice a week or less, and 7 percent have contact with these people less than weekly.

- Nearly two-fifths (38%) said they would have little daily contact with people if not for their HDM service.
- Clients in poor health were less likely than those in better health to see friends or family members daily, and they were more likely to said they would have little daily contact with people if not for the meal service.
- Clients overwhelmingly said that the people who deliver their meals treat them with respect, are courteous and friendly, and take time to talk with them.

### Contact with friends and family

Nearly three-quarters of recipients (71%) have contact with family or friends daily or almost daily, while 22 percent have contact with these people once or twice a week and 7 percent have contact with them less than weekly. There are few significant differences in the level of social contact between groups of respondents (Tables A17 and A18 in Appendix III), but it is important to note that those in "fair" or "poor" self-reported health are significantly less likely than those in "good" or "excellent" health to see friends or family daily or almost daily (61 percent compared to 79 percent); they are more likely to see friends or family less than once a week (14 percent compared to 2 percent). These individuals are likely at greater risk of an emergency situation (and arguably also in greater need of social contact), so their reduced level of family/friend contact means they could benefit greatly from the social and safety benefits of daily meal delivery.

The other differences in the level of friend/family social contact are not statistically significant but are more encouraging. It appears that individuals age 75 or older are more likely than their younger counterparts to see a friend or family member daily or almost daily. Nonwhite clients also appear more likely to have daily/almost daily contact with friends and family. There were no significant differences in the amount of contact with friends or family by meal type.

### Respondent opinions on the social importance of HDM service

Only 38 percent of respondents said they probably or definitely would have little daily contact with people if they did not have the meal service. Consistent with the finding above, those who described their health as "fair" or "poor" appear more likely to say they would have little daily contact with people if they did not have the meal service (46 percent, compared to 33 percent of those in "good" or "excellent" health). In addition, clients with two or more challenges in IADLs were more likely than those without such challenges to say that they would have little daily contact with people without the meal service.

Other apparent (but statistically insignificant) trends include a greater proportion of clients at medium or high nutritional risk and clients with one or more ADL challenges reporting that they would have little daily contact with people if they did not receive home-delivered meals. In other words, those in worse health would experience the greatest reduction in contact with people if they did not receive home-delivered meals.

In addition, clients who receive hot daily meals on weekdays were (unsurprisingly) significantly more likely than recipients of frozen meals to say they would have less daily contact with people without their home-delivered meal program (Table A19 in Appendix III). Similarly, those who receive meals from volunteer deliverers also seem more likely than recipients whose deliverers are paid (who tend to receive weekly delivery) to say they would have little daily contact with people if they did not have their meal service.

### Quality of interactions with meal deliverers

Clients' perceptions of the quality of their interactions with meal deliverers are critical to evaluating the importance of the social contact that they experience at the point of meal delivery. As shown in Table 12, clients overwhelmingly said that the people who deliver their meals treat them with respect, are courteous and friendly, and take time to talk with them. Two-thirds of clients strongly agreed that their meal deliverers treat them with respect and are courteous and friendly, and only one client disagreed with either statement. Clients also tended to agree (but not strongly agree) that their meal deliverers take time to talk with them, though 10 percent of respondents disagreed with this statement.

**12. Interactions with meal deliverers**

| The people who deliver my meals… | Strongly agree | Agree | Disagree/ strongly disagree | N |
|---|---|---|---|---|
| …treat me with respect. | 67% | 33% | - | 176 |
| …are courteous and friendly. | 66% | 33% | 1% | 176 |
| …take time to talk with me | 35% | 55% | 10% | 171 |

Given the overwhelmingly positive nature of the responses, disaggregated analysis by group only allows a closer look at the strongly agree/agree distinction, the importance of which is questionable. That said, there are some patterns worth noting (shown in Table A20 in Appendix III). Men were significantly more likely than women to strongly agree that their meal deliverers treat them with respect (80 percent compared to 60 percent). Lower-income clients were less likely than their higher-income counterparts to strongly agree with this statement, with rates of "strongly agree" at 60, 71, and 82 percent for those below the poverty line, between 100-200 percent of the poverty line, and above the poverty line, respectively. In general, clients age 75 and over were also less likely than

those under 75 to strongly agree that their deliverers treat them with respect and are courteous and friendly. In sum, women, low-income clients, and older clients were the least enthusiastic about the quality of their interactions with their meal deliverers.

There were no significant differences in interaction quality by respondent health (Table A21 in Appendix III).

Deliverers also acknowledged the importance of their social contact with clients, as described in the "Views of volunteer and paid delivery drivers" section above. Some deliverers, both paid and volunteer, commented that the shortage of time limits social interaction to a few minutes at most, but noted that meaningful relationships can form over time with some clients.

### Safety check-ins

*Key findings:*

- About two-thirds (68%) of respondents said that receiving home-delivered meals contributes to their safety, and one-quarter (26%) of these mentioned the importance of the check-in when asked how the program contributes to their safety.

- Recipients of hot daily weekday meals and clients with volunteer deliverers were more likely to mention the importance of the safety check when asked how receiving home-delivered meals contributes to their safety.

The other commonly cited function of weekday meal delivery is the check-in, a daily opportunity for program volunteers or staff to verify the well-being of the clients. The population of home-delivered meal recipients, by definition, has limited functional ability and a high incidence of health problems. If a client fails to answer the door or appears to be in worse health than usual, the program places a call to the client's emergency contact or to emergency services if necessary. Many advocates of hot daily meals argue that this daily verification of well-being is a crucial component of the service offered by meals on wheels.

About two-thirds (68%) of respondents said that receiving home-delivered meals contributes to their safety. Clients with fewer IADL challenges were less likely to say that the meal program contributes to their safety (Table A24 in Appendix III), as were clients under the age of 85 (Table A23 in Appendix III). On a similar note, there is also some evidence that clients with more ADL challenges and higher nutritional risk were more likely to say that receiving home-delivered meals contributes to their safety. As a whole, older clients in worse health appear more likely to believe that home-delivered meals contribute to their safety, an unsurprising result.

In addition, while frozen meal recipients and hot meal recipients were equally likely to say that receiving home-delivered meals contributes to their safety (even when controlling for health and demographic characteristics), clients with paid deliverers were significantly less likely than clients with volunteer deliverers to say that receiving home-delivered meals contributes to their safety (Table A25 in Appendix III).

While most respondents said that their safety is enhanced by their home-delivered meal program, when asked how the meals program contributes to their safety, the majority of those (64%) credited this improved safety to the fact that they no longer need to manage the work associated with providing their own meals, such as going outside/to the store (46%) and using the stove/cooking (23%). About one-quarter (26%) of clients mentioned the importance of the daily check-in, with 15 percent specifically acknowledging the safety check. For example:

- "If I don't answer the door when they get here, they'll know that there's something wrong with me inside the house."
- "Because I have someone coming every day. I have daily contact with people."
- "Just the fact that somebody comes by the house to me and realizes that I am doing all right. My having some dementia and narcolepsy and not coming to the door, no one would know that for a while [if not for the meal service]."

Deliverers also acknowledged the importance of the check-in, and all (both paid and volunteer) deliverers are trained to recognize potential health issues and to take appropriate action when a client fails to answer the door. About one-quarter of both volunteer and paid delivery personnel reported encountering a situation that required some type of attention within the last two months.[13]

Recipients of hot daily weekday meals and clients with volunteer deliverers were more likely to mention the importance of the safety check when asked how receiving home-delivered meals contributes to their safety. One-fifth of hot meal recipients and clients with volunteer deliverers mentioned the importance of the safety check, compared to only 6 percent of frozen meal recipients and 9 percent of clients with paid deliverers.

[13] We attempted to collect data on how frequently this daily check-in leads to the earlier recognition of a health problem requiring intervention, but meal programs do not keep data on the frequency of incidents when a meal deliverer noticed a problem (a client failing to answer the door, for example) and intervention was necessary.

### Social contact and safety check-ins in summary

About one-third of clients said they rely on their home-delivered meal service for much of their social contact; 29 percent said they have contact with friends or family members only twice a week or less, and 38 percent said they would have little daily contact with people if not for the home-delivered meal service. This was especially true for clients in poor health. Hot meal recipients were significantly more likely to say they would have little daily contact without the meal service (which is unsurprising because frozen meal recipients do not have daily contact with their meal deliverers).

Clients generally described their interactions with meal deliverers quite positively. Ninety-nine percent of clients said their deliverers treat them with respect and are courteous and friendly. Most (89 percent) also said that their meal deliverers take the time to talk with them. Due to the high levels of agreement on these measures, there were few meaningful differences by demographics, health characteristics, or meal type.

The interaction between client and meal deliverer at the point of delivery is also valued for the opportunity to check on the client's well-being. Two-thirds of clients said that receiving home-delivered meals contributes to their safety, and one-quarter of those mentioned the importance of the social contact or welfare check when asked how the service contributes to their safety. Frozen meal recipients and hot meal recipients were equally likely to say that receiving home-delivered meals contributes to their safety, but hot meal recipients and clients with volunteer deliverers were more likely to mention the importance of the safety check when asked how receiving home-delivered meals contributes to their safety.

These findings indicate that hot meal recipients and frozen meal recipients were equally likely to have positive experiences with their meal deliverers and to feel that receiving home-delivered meals contributes to their safety. Hot meal recipients were, however, more likely to mention the importance of the social contact or daily check-in as it contributes to their safety, and were more likely to say they would have little daily contact without the meal service. It appears, therefore, that hot meal recipients rely more on their meal service for their social contact and many of them perceive the impact of that contact on their safety.

# Food safety and heating meals

*Key findings:*

- One in ten respondents (11%) said they leave their hot meals out on the counter or table until they are ready to eat them, presenting a potential food safety hazard for these clients.

- Seventeen percent of hot meal recipients said they would need help heating their meals, with the highest need among nonwhite clients (particularly Asians) and low-income clients.

The frozen meal debate has often seen the challenge of heating frozen meals square off against the potential food safety hazard of hot meals. Frozen meals ensure that food is stored at safe temperatures until the client is ready to eat, while hot meals ensure that the client eats a hot meal without having to overcome mobility challenges to heat it up. Survey results indicate that both are valid arguments that are indeed relevant among this client population.

## *Food safety*

A common argument in favor of frozen meal delivery is the danger posed by hot meals that are not kept at a safe temperature between preparation and consumption. In Minnesota weather, it can be a challenge to keep the food above the safe temperature of 140 degrees prior to delivery, but perhaps more importantly, once the meal has been delivered, the program has no control over how long the food sits (and potentially cools to unsafe temperatures) before being eaten.

Seventy-three percent of hot meal recipients said they ate their most recent home-delivered meal when it was delivered, while 27 percent said they saved it for later (Table A26 in Appendix III). When asked what they do with their meals when they do not eat them right away, three-quarters (76%) of hot meal recipients said they keep their meals refrigerated or frozen until they are ready to eat them, and another 13 percent volunteered that they always eat their meals immediately upon receiving them. The remaining 11 percent, however, said they leave them out on a counter or table until they are ready to eat them. Depending how long these recipients wait before eating these meals, this could be a potential safety hazard for more than one in ten hot meal recipients, even if the meal program delivers the meals at a safe temperature. All recipients of frozen meals said they keep their meals in the freezer until they are ready to eat them.

## *Heating frozen meals*

Some skeptics of frozen home-delivered meals suggest that heating frozen meals might be difficult or impossible for clients with severely limited functional ability or without access to a microwave. In our study, nearly all recipients of frozen meals (98%) said they require no assistance to heat their meals, but many more hot meal recipients (17%) said they would need help if they had to heat their meals (Table A27 in Appendix III). Nonwhite recipients were more likely to say they would need help if they had to heat their meals (39 percent, compared to 6 percent of white recipients), with the highest need among Asian clients (of whom 78 percent would need help heating their meals). Low-income recipients were also more likely than higher-income recipients to say they would need help heating their meals (26 percent of those with incomes below the poverty line, 7 percent of those with incomes between 100-200 percent of the poverty line, and none of those with incomes above 200 percent of the poverty line). There were no significant differences by ADL/IADL challenges, nutritional risk, or self-reported health.

Of those hot meal recipients who said they would need help to heat their meals, 13 percent said they would have nobody to help them do so.

Both risks (the food safety hazard of hot meals left out and the inability of some clients to heat frozen meals) appear to be present among at least one in ten clients. As a result, providers of both meal models must be aware of these risks and tailor their service to those clients; frozen meal programs should provide hot meals to those who cannot heat their own and hot meal programs should keep meals at a safe temperature until delivery and encourage immediate meal consumption upon delivery.

## *Hmong meals*

Because culturally appropriate meals make up an important and growing segment of home-delivered meals in the Twin Cities, we interviewed 12 Hmong clients who received hot daily Hmong meals on weekdays.

Hmong clients tended to be younger than the average client (76 compared to 80) and to receive more meals than average (28 meals per month compared to 19 for other clients). All of the Hmong clients were at high nutritional risk (58 percent of other clients), and they were more likely than others to describe their health as “fair” or “poor” (63 percent, compared to 39 percent of others).

Hmong clients were significantly more likely than others to say they would need help heating a meal; 89 percent said they would need assistance, compared to only 7 percent of others.

Only 44 percent of Hmong clients ate all or most of their most recent home-delivered meal (84 percent of others), while the same percentage said they ate some of it. Hmong clients tended to describe the variety, nutritional value, taste, and appearance of the food as "good," though one-third of Hmong clients described the meal taste as "fair" or "poor" (20 percent of others).

Hmong clients were also less enthusiastic about the quality of their interactions with the meal deliverers; Hmong clients often said they agreed but did not strongly agree that their meal deliverers treat them with respect (89 percent agreed and 11 percent strongly agreed) and are courteous and friendly (78 percent agreed and 11 percent strongly agreed) while others were more likely to strongly agree with both statements (70 percent and 69 percent strongly agreed with the respectfulness and courtesy/friendliness of their meal deliverers, respectively). While 91 percent of others agreed or strongly agreed that the people who deliver their meals take time to talk with them, only two-thirds of Hmong recipients agreed or strongly agreed with the statement. Hmong clients were also less likely than other clients to agree that they can depend on the meals to be delivered at the time the program says they will be delivered (56 percent, compared to 98 percent of others).

Overall, Hmong recipients' responses indicated a greater-than-average reliance on the meal program for their meals, continued independent living, and social contact. Only 44 percent of Hmong respondents said they could manage their daily meals okay on their own without the meal program (58 percent of others), though they were significantly more likely to say they could get help with their daily meals from a family member or friend (78 percent compared to 40 percent of others). Almost all (89 percent) said they would eat less well than they do now if they did not have the meal service (73 percent of others), and 71 percent had noticed a change in their health since they started receiving the home-delivered meals (30 percent of others).

More than three-quarters (78%) said it would be difficult to continue living where they are living now (44 percent of others), and one-third would have to go live somewhere else (20 percent of others) if they did not receive home-delivered meals. Three-quarters (78 percent) also said they would have little daily contact with people without the meal service (36 percent of others).

Three-quarters of Hmong respondents rate the overall quality of their meal program as "good" or "excellent" (86 percent of others), while 25 percent described it as "fair" or "poor" (14 percent of others).

# Customer service and overall program quality

## *Customer service*

*Key findings:*

- Clients tended to describe their contact with office staff and their delivery reliability very positively, with 96 to 100 percent of clients agreeing or strongly agreeing that the office staff are courteous and friendly, treat the client with respect, respond promptly to questions and concerns, make it easy to change the delivery schedule, and deliver the meals at the time the program says they will be delivered.

- White and relatively higher-income clients were more likely to agree that they can depend on the meals to be delivered at the time the program says they will be delivered.

- Clients age 75 and over were significantly less likely than younger clients to strongly agree that the office staff respond promptly to their questions and concerns.

**13. Customer service**

| | Strongly agree | Agree | Disagree or strongly disagree | N |
|---|---|---|---|---|
| The office staff are courteous and friendly. | 52% | 48% | - | 140 |
| The office staff treat me with respect. | 49% | 51% | - | 140 |
| It is easy for me to contact the office staff. | 39% | 59% | 1% | 138 |
| The office staff respond promptly to my questions and concerns. | 41% | 57% | 2% | 130 |
| It is easy for me to change my delivery schedule. | 31% | 68% | 1% | 85 |
| I can depend on the meals to be delivered at the time the program says they will be delivered. | 42% | 54% | 4% | 175 |

As with their interactions with their meal deliverer, clients tended to describe their contact with office staff and their delivery reliability very positively (Table 13). Of those who had contacted their program office, 100 percent agreed or strongly agreed that the office staff are courteous and friendly and that they treat the client with respect. Nearly all clients also said that it is easy for them to contact the office staff (99%), that the office staff respond promptly to their questions and concerns (98%), that it is easy to change their delivery schedule (99%), and that they can depend on the meals to be delivered at the time the program says they will be delivered (96%).

The reliability of meal delivery differs significantly by income, race, provider, meal type, and delivery type. White clients were significantly more likely to agree with this statement than clients of color, with 99 percent of white clients agreeing, compared to 82 percent of clients of color (Table A28 in Appendix III). Clients with incomes below the poverty line were also less likely to agree than their higher-income counterparts (89 percent compared to 99 percent).

Frozen meal recipients were significantly more likely than hot meal clients to strongly agree that their meals are dependably delivered when the program says they will be delivered (Table A29). There were no significant differences based on respondent health. Clients age 75 and over were significantly less likely than younger clients to strongly agree that the office staff respond promptly to their questions and concerns (61 percent compared to 33 percent). Aside from that and the reliability of delivery, there were no significant differences in other measures of customer service quality by meal type, deliverer type, or client demographic or health characteristics. All in all, clients gave high marks for customer service across all providers.

## *Overall program quality*

*Key findings:*

- Nearly all clients said they would recommend their HDM program to others, and 89 percent rated the overall quality of their program as "excellent" or "good."
- Comparing responses by demographics, objective measures of health, meal/delivery type, and provider, there were no significant differences in overall program quality ratings or in the percentage of respondents who would recommend the program to others.

Clients had strongly positive overall opinions about their meal programs (Table A30 in Appendix III). Nearly all (97%) said they would recommend their HDM program to others, and 89 percent rated the quality of their program as "excellent" (44%) or "good" (45%).[14] There were no significant demographic differences in overall program quality ratings or in the percentage of respondents who would recommend the program to others.

[14] It is important to note here that these responses include only clients who have received at least one meal in the last 30 days. Clients who had received their most recent meal more than 30 days ago tended to rate overall program quality significantly less favorably than those who had received at least one meal in the last 30 days. Of the 31 clients whose most recent home-delivered meal was delivered more than 30 days ago, 62 percent rated overall program quality as "excellent" or "good," while 23 percent rated it as "fair" and 16 percent rated it as "poor." In addition, the proportion of "excellent" or "good" ratings ranged from 4 of 12 respondents for Presbyterian Homes, to 5 of 8 respondents for VOA, and 10 of 11 respondents for CAP. However, because of the small sample sizes, these differences should be interpreted with caution.

Looking now at overall program quality by respondent health (Table A31 in Appendix III), there were no significant differences by the objective measures of health (nutritional risk and ADL/IADL challenges). However, clients who described their health as "fair" or "poor" were significantly more likely to rate the overall program quality as "good," "fair," or "poor," while those who described their health as "excellent" or "good" were more likely to rate overall the program quality as "excellent." Given the possibility of bias of general outlook (optimistic respondents might be more likely to rate both their health and the program quality more positively), we cannot conclude based solely on this relationship that these HDM programs provide higher quality meals and service to healthier clients. Instead, the evidence (based on the objective measures of health) indicates that the programs provide high-quality service to all clients, regardless of their health.

There were no significant differences in program rating by provider, meal type, delivery type, or the number of meals per week (Table A32 in Appendix III).

### Program strengths

*Key findings:*

- Respondents most commonly said they would recommend their program because of improved nutritional intake or outcomes (33%) or for the convenience and safety of avoiding cooking or leaving the house (33%).
- The most popular program strengths were quite similar across providers and meal types, but hot meal recipients were more likely to mention the importance of the safety check-in, the reduced need to cook, and the dependability and reliability of the service.

Of the 97% of respondents who said they would recommend their HDM program to others, the majority said they would recommend it either because of the improved nutritional intake/outcomes or because of the convenience and improved safety of not having to manage one's own meals. One-third of respondents said they would recommend the program for its nutritional benefit (the nutrient content and quality of the meals). For example:

> I would not be eating the right things; I would just be snacking around all day instead of getting a good meal.
>
> Because of the nutrition. It's a real asset to have a well-balanced meal.
>
> You get the right kind of food. It makes a difference that you get the kind of food that you are supposed to eat.

Another third of respondents said they would recommend the meal service because receiving home-delivered meals is convenient and saves them the trouble (and risk) of leaving the house or cooking.

> The meals are nutritional and good. For those who can't get out it's a great service to stay in their home and eat.
>
> When you get older it gets harder to think up meals to eat even though your cupboards are full and it is just a blessing to have your meals delivered to you and you can underline "blessing.
>
> If you can't cook for yourself, the meal comes to you instead of you not having any.
>
> Because it is a convenience that makes life easier.

Many other respondents noted simply that it is a good meal (23%) or generally a good service (18%).

> Because it's done properly and neat and it's delicious.
>
> It is an excellent program.
>
> The food is good. The service is good.
>
> It's a big highlight of her day. It's more of an entertainment for her. She looks out the window to see if her meal is coming. She does this one hour before it comes. It's good food.

Finally, several respondents acknowledged the importance of the daily contact with people (7%), the reliability, dependability, and promptness of the service (7%), the choice/variety of food (7%), and the low cost of the service (6%):

> Somebody is coming around to visit me and to know that I'm alive and being able to talk especially when I am more enclosed during the winter.
>
> Because of the promptness and reliability and easy access to the people running the program and quality of the meals.
>
> Because you have a lot of choices and you can change the menus from week to week; from chicken to pork to beef.
>
> They are good meals and the price is right.
>
> Because I feel the meals are good with nutritious value, well-rounded meals with the face-to-face contact. Easy to reheat. It helps her to keep living independently.

Of the few who said they would not recommend the program, the comments varied from insufficient variety to poor preparation/taste to small portions. All in all, though, these comments were quite rare.

Comparing responses by meal type, hot meal recipients were more likely than frozen meal recipients to say they would recommend the service because of:

- the social contact or regular check-in (12 percent compared to 2 percent)
- the reduced need to cook (15 percent compared to 5 percent)
- the dependability/reliability of the service (8 percent compared to 2 percent)

Frozen meal recipients, on the other hand, were more likely to recommend the service because of the low cost (9 percent compared to 4 percent) and to make a general positive statement about the service when asked why they would recommend the program (29 percent compared to 13 percent).

Twelve percent of clients who received their meals from volunteer deliverers said they would recommend the program for the social interaction or regular check-in, compared to none of the clients who received their meals from paid deliverers.

Comparing responses by provider, CAP clients were most likely to recommend the program because of the nutritional benefit (31 percent, compared to 19 percent of Presbyterian Homes clients and 23 percent of VOA clients). CAP clients were also most likely to mention the benefit of not having to go out to the store (15 percent, compared to 7 percent of the others). Presbyterian Homes clients were least likely to mention the benefit of not having to cook (4 percent, compared to 13 percent of VOA clients and 21 percent of CAP clients) or the social contact and regular check-in (1 percent, compared to 8 percent of CAP clients and 15 percent of VOA clients). Presbyterian Homes clients were most likely to point out the low cost of the meal service (10 percent, compared to 5 percent of CAP clients and 2 percent of VOA clients).

## Client suggestions for program change

*Key findings:*

- Nearly half of clients could not think of anything they would change about their HDM program.
- Most suggested changes were specific requests for food types or suggestions for improved food preparation.

When asked what clients would change about their HDM program if they could change anything, nearly half (48%) of respondents said they could not think of anything they would change or would not change anything. Another 5 percent simply restated their program's positive attributes, and 4 percent suggested that the program serve more meals, advertise more, or be available to more people.

The most common requested changes were specific requests for food types, mentioned by 20 percent of respondents. Some examples include:

> A bottle of red wine, more milk, put in chocolate milk once in a while.
>
> I would like to see more fresh veggies like cabbage salads but the quality of the lettuce is poor. And more fruits.
>
> Not so much pasta and rice.
>
> I would change the milk. I would like to get 2% instead of skim milk.
>
> Get away from the mac and cheese dishes. I would like more chicken and turkey and meatloaf – especially chicken.

Several other respondents (12%) commented on the quality and preparation of the food:

> Improve quality of meats. Well, just improve quality of food.
>
> The flavor of the vegetables. If they did not want to put salt on them, they could put some herbs on them. I have one heck of a time eating those vegetables.
>
> Greater desire for excellence with the meals. They are fair, not good or excellent. The amount and variety are fine. It's the flavor that needs attention. The meals are quite bland.
>
> The only thing is they overcook their vegetables – definitely overcooked.
>
> Fresh fruit needs attention. During the summer months the fresh fruit is not very good. It still beats the packaged fruit we receive off-season.

> The quality of food. Better food. It's kind of dried up, toughed up bits of meat and doesn't look that fresh. I don't think you'd eat it and it is pretty expensive for what you get.

Finally, others requested larger portions (6%), a different or more consistent/reliable delivery time (5%), and more variety (4%).

Comparing client suggestions for improvement by meal type, hot meal recipients were a bit more likely than frozen meal recipients to say they wouldn't change anything (49 percent compared to 42 percent) and to call for a more consistent/reliable delivery time (8 percent compared to 2 percent). Frozen meal recipients, on the other hand, were more likely to request better preparation or higher quality food (24 percent compared to 7 percent) and larger portions (11 percent compared to 4 percent).

### Customer service and overall program quality in summary

Consistent with the results presented elsewhere, client survey results indicate that clients were very satisfied with their home-delivered meal programs. Clients overwhelmingly agreed that staff are courteous, friendly, respectful, easy to contact, and responsive to questions and concerns. Even the reliability of meal delivery, the customer service measure on which programs performed the worst, was rated favorably by 96 percent of respondents. These measures were rated slightly less favorably (but still very positively) among clients of color, low-income clients, hot meal recipients, and clients who receive their meals from paid deliverers.

Nearly all clients said they would recommend their HDM program to others, and nine out of 10 rated the overall quality of the program as "excellent" or "good." Respondents most commonly said they would recommend their program because of improved nutritional intake or outcomes (33%) or for the convenience and safety of avoiding cooking or leaving the house (33%). Nearly half of clients could not think of a single thing they would change about their meal program. Of those who suggested changes, most were specific requests for food types or suggestions for improved food preparation. When clients mentioned recent changes that have taken place in their meal program, there was a fairly close balance of positive and negative references to those changes.

Program quality ratings were similarly positive among all levels of health, demographic groups, and meal/delivery types. The most popular program strengths (improved nutritional intake or outcomes and the convenience of receiving prepared meals) were quite similar across providers and meal types, but hot meal recipients were somewhat more likely to mention the importance of the safety check-in, the reduced need to cook and use the stove, and the dependability and reliability of the service.

# Conclusions and issues to consider

Based on a wide range of information sources including a review of prior research, an examination of program models outside of Minnesota, as well as the in-depth consumer and provider interviews completed as part of this study, it is clear that the landscape regarding the provision of home-delivered meals to older adults has changed significantly in recent years. New methods are being tried to increase choice, gain efficiencies, and meet the expectations of more diverse clients, while meeting the fundamental purpose of delivering healthy and nutritious meals to seniors who are at risk of malnutrition.

Within this environment it is not unexpected that there would be attempts to expand beyond traditional models of hot meals delivered daily on weekdays by volunteers to include strategies that offer frozen meals, fresh fruit and produce, and culturally specific choices. It is also not surprising that as circumstances and demographics shift, for-profit providers would experiment with offering a range of menu choices, modern packaging strategies and commercial transportation services that can deliver meals to a client's door, even in remote rural areas. In principle, this development can be positive for consumers because it increases choice, seeks efficiencies, and responds to preferences in a way that typically does not occur without competing models, strategies and interests.

In a changing environment, it is also expected that there would be some variability in how individual consumers would express their preferences for home-delivered meal services. This study has shown that hot meals are rated somewhat more favorably by consumers who are older, with higher incomes and lower nutritional risk. Frozen meals, on the other hand, offer greater choice and receive comparable satisfaction ratings among those who are younger, with lower incomes and higher nutritional risk. Overall, the study indicates that there are relatively few significant differences in consumer ratings based on either meal type (hot or frozen) or delivery type (paid or volunteer), although it is clear that some consumers do have a clear preference for one model over another.

The results of this study indicate that movement toward a more diverse model of service has not had serious or negative consequences for consumers. In fact, competition among providers appears to have encouraged creative solutions for involving older adult volunteers among service models that use paid drivers and has, at the same time, encouraged services that use more traditional meal delivery models to expand food choices for consumers. In fact, the models currently funded by the Metropolitan Area Agency on Aging have become more blended even over the brief course of the study.

The study also shows that the growing cost of meal preparation and program administration, along with advances in common-carrier delivery logistics, have made it possible for for-profit meal services to become competitive in markets that were previously served only

by nonprofit providers. This will undoubtedly pose growing challenges for nonprofits to maintain a presence in this market and will require even greater efficiencies in meal preparation and delivery strategies among nonprofit providers in the future.

Further, the study demonstrates that the involvement of volunteers remains valuable, if not essential, in both the hot meal and the frozen meal service models currently in place. Older adult volunteers benefit significantly from their involvement in service delivery and, at the same time, consumers gain some benefit from contact with volunteers. While there are clearly other strategies for increasing social contact with isolated seniors--and the study demonstrates that the vast majority of current consumers have social contacts outside of this program--there is still significant advantage gained through the use of volunteers when they are managed effectively and their contributions are valued and rewarded.

Perhaps most importantly, as we look to the Baby Boomers who will soon expand the ranks of seniors to dimensions previously unseen in Minnesota and throughout the United States, it is essential to consider their eating habits and penchant for choice, as well as their sheer numbers. The profile of those who find frozen meals to be on par with (or sometimes better than) hot meals include those who are younger, with lower incomes and higher nutritional risk. It seems useful at this time to explore new service models, see how they stand up to competition, test variations and hybrid strategies, and consider how to better serve the next generation of consumers whose needs and preferences will be different and whose numbers will be much greater.

At the same time, it will be important to plan how to engage those Baby Boomers who are physically and financially able, to become part of current and future service strategies that support their neighbors. Home-delivered meal programs have proven to be a very attractive volunteer option for many older adults. It will be important not to lose this capacity to engage volunteers and to find meaningful opportunities that allow them to contribute effectively and creatively in the next generation of service models. Their contributions will be essential if we are to respond to the next generation of older consumers in ways that are both cost effective and useful.

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# Appendix

## *Appendix I: Literature review*

### Scope and targeting of home-delivered meals

While home-delivered meals (HDMs) are technically available to all homebound individuals aged 60 or older, recent research indicates a high level of unmet need for HDM services. According to a Government Accountability Office study (2011, p. 16), 19 percent of low-income older adults were food insecure in 2008, and of those, 90 percent received no meal services. To date, much of the unmet need has been largely invisible to programs as budget limitations have prevented programs from promoting awareness of (and increasing demand for) meal services among food-insecure seniors. However, the level of visible unmet need is now growing; 79 percent of aging agencies report increased demand for home-delivered meal services (p. 31), while 47 percent of agencies experienced overall decreases in funds from fiscal year 2009 to 2010 and 27 percent anticipated further reductions in fiscal year 2011 (p. 29-30). Given this intersection of rising demand and shrinking budgets, it is unsurprising that 22 percent of agencies reported being unable to provide home-delivered meals for all eligible seniors who requested them (p. 17), and nearly 80 percent of states reported that they have waiting lists for HDM services in a 2009 survey of state agencies (NASUAD, 2009, p.5).

The circumstances described above have forced program leaders to consider the most efficient means of reaching program goals. Based on the program's evolving priorities, amendments to the 1965 OAA have encouraged providers to target nutrition services more specifically toward "those in greatest social and economic need with particular attention to low income individuals, minority individuals, those in rural communities, those with limited English proficiency and those at risk of institutional care" (http://www.aoa.gov/aoaroot/aoa_programs/hcltc/nutrition_services). These goals are often summarized as targeting those with high levels of economic or social need, where economic need is defined as "an income at or below the poverty threshold specified by the U.S. Department of Health and Human Services (DHHS) guidelines" and social need is defined as a "need for services [that] is the result of noneconomic factors, such as physical or mental disabilities, language barriers, or cultural or social isolation" (Ponza et al., 1998, p. 16).

Despite the clear identification of targeting intent in the amended OAA, means testing is not allowed for HDM participants, nor are programs required to provide meals for (or even gear outreach toward) prospective participants who fit into the target groups of the poor, rural, and racial/ethnic minority populations. Jung et al. (2008) found, in their

nationally representative survey of 29 AAA directors and 64 local HDM providers, that few programs directed their outreach at those with greatest economic and social need. "Although providers reported the specific groups they thought were most in need of HDM, their outreach strategies, needs assessments, and service delivery system did not directly target these populations," they said. "Instead, the reported outreach strategies were directed to the general public (i.e., maximum outreach)" (Jung et al., 2008, p. 411). The remainder of this section summarizes the available literature regarding the populations served by the HDM program and the impact of this broad targeting strategy.

Understanding the characteristics of the population that is eligible to receive HDMs is critical to evaluating the success of targeting efforts. In their 1999 study of New York households, Melnik et al. conducted telephone interviews with over 3,300 households (representing 4,570 elderly individuals) in New York State to determine the characteristics and HDM participation rates of individuals who were eligible for HDMs. They found that 6.6 percent of New York State's elderly population was eligible for HDMs (over the age of 60; "homebound and incapacitated due to accident, illness, or frailty"; without support of family, neighbors, or friends; and unable to prepare their own meals) (Melnik et al., 1999, p. 37-39). The eligible respondents were significantly more likely to be female (8.6 percent eligible), 75 or older (16 percent eligible), minority (13 percent eligible), and residents of New York City (8.9 percent eligible), with incomes below the poverty line (14 percent eligible). The same characteristics were significantly related to nutritional risk, and nearly 40 percent of the respondents at high nutritional risk fit the eligibility criteria for HDMs (Melnik et al., 1999, p. 41). Of the eligible population overall, about 30 percent received HDM services.

The profile of the typical HDM-eligible senior as illustrated by Melnik et al. is generally consistent with other profiles (nationally and locally) of HDM participants; they tend to be female, older, low-income, and urban. According to the 1995 Elderly Nutrition Program evaluation conducted by Ponza et al., 71 percent of HDM participants were female, 67 percent were 75 or older, 53 percent had incomes below the poverty line, and only 40 percent were rural (Ponza et al., 1998, p. 17-19). Similar profiles were found in several other studies (see, for example, Gollub and Weddle, 2004; Frongillo and Wolfe, 2010; Kim et al., 2010; Colello, 2011). Few studies contain income profiles, however, and the low-income (below the poverty line) segment of the participant population was found to be as low as 31 percent in one Pacific Northwest study (Choi, 2001) and 34 percent in one nationally representative study (Millen et al., 2002). Millen et al. do find that "[t]here is 2 to 3 times the proportion of impoverished elderly persons being served by ENP than in the general population" (p. 237), a fairly encouraging statistic given the aims of the program.

Findings of representation of minorities among HDM participants seem to vary widely in the literature. Ponza et al. (1998, p. 24) found that minority elders participated in HDMs at a rate roughly proportional to their representation in the overall population, or about 17 percent of program participation in FY 1992. Balsam and Rogers (1991, p. 49) point out the inconsistencies between national minority participation and more localized areas, citing a national study suggesting that minorities receive a higher percentage of meals than their percentage of the population (Weimer, 1983) and a Boston study showing that minority elders received a much smaller percentage of the meals than their percentage of the population (Posner, 1979). Despite the advanced age of these studies, the literature contains few further developments on the relative representation of minorities in HDMs since.

Several studies, however, acknowledge the barriers to participation for and lack of targeting toward ethnic minorities. The 1999 study by Melnik et al. in New York found that people identifying as “other” and Hispanics participated at much lower rates (21 percent and 14 percent, respectively) than whites or African Americans. Compared to other minorities, Hispanic people were the most likely to be eligible for HDMs (16 percent of Hispanic elderly were eligible) but were the least likely to participate (Melnik et al., 1999, p. 41). Choi (2001, p. 187) found that, even controlling for nutrition and health status, being Asian American and lacking English language proficiency reduced the likelihood of participation in HDM programs.

Findings like these are unsurprising, given the conclusion of Ponza et al. that “projects located in areas with high proportions of elderly minorities were *less* likely to develop specially targeted services to reach nonwhite and linguistic minority elderly” (1998, p. 25). Jung et al. (2008, p. 410), in their national provider survey, found that only 43 percent of providers offered culturally appropriate meals, and Choi (1999, p. 401) found that African American elders were more than twice as likely as white elders to stop HDM service due to “dissatisfaction with the quality of the meals, different food preferences, and/or poor appetite.” In a future paper, Choi (2001, p. 192) explained that minority elders are unlikely to participate in a program without culturally specific food options.

Claims in the literature of underserved populations are not limited to ethnic minorities. The “socially impaired” (including the homeless, alcoholics and chemical dependents, deinstitutionalized mental patients, or victims of abuse and neglect) are extremely difficult to reach due to volunteer/worker reluctance and even fear for their own safety in interacting with these participants and visiting their “dangerous neighborhoods” (Balsam and Rogers, 1991, p. 45). Ellis and Roe (1993, p. 1035) also pointed out the limitations of services provided to “geographically isolated and impoverished regions in each program’s planning and service areas,” with service provisions “concentrated in regions with above-average 65+ population densities and below-average 65+ poverty rates.” Roe (1994, p. 31) suggests that even those at high nutritional risk are underserved by the system

because "the indications of need for home-delivered meals [have] been based on non-nutritional criteria."

The literature offers a list of proposed solutions for these identified targeting problems. Choi (2001, p. 206) calls for the "provision of ethnic menus and/or more diverse choices in menus that would be more acceptable to [Asian American and Hispanic] elders' palates and traditional food beliefs" to encourage participation in HDMs among ethnic minorities. Balsam and Rogers (1991, p. 50-51) echo this suggestion, arguing for culturally appropriate meal options and staff who "celebrate the culture in food and activities," and pointing out that successful ethnic meal programs exist in Massachusetts. They also acknowledge an innovative Boston-based program, a mobile meals truck that targets the "socially impaired" elderly with nutrition and social services (p. 48). Finally, Roe (1994) and Melnik et al. (1999) call for the use of nutrition assessments in assessing need or eligibility for HDMs as a means of more effectively targeting services to those in greatest need.

### Participant satisfaction and nutritional impact

Home-delivered meal programs, if effective, can provide crucial nutrients to older Americans, allowing them to remain in their homes and saving taxpayers the much greater costs of hospitalization and/or institutionalization. According to Senator Barry Sanders' 2011 Senior Hunger Report, the cost of a year of HDMs is roughly equal to the cost of a single day in the hospital, and half of all health conditions that impact older Americans are directly related to poor nutrition (p.1). In other words, by addressing the source of many health problems among seniors, effective HDM programs can reduce the incidence of hospitalization and enable independence among seniors. In a 2009 survey, nearly 60 percent of HDM recipients said that their meals program provided at least half of their daily food intake (Colello, 2011, p.8) and more than 90 percent of HDM recipient said that the meal program allows them to remain in their homes (Altshuler and Schimmel, 2010).

Achieving these positive nutritional impacts with the HDM program requires that (1) participants consume their meals and (2) those meals have high nutrient content. While the questions themselves are simple enough, collecting the data to address them is a complicating factor in assessing the nutritional impact of HDM programs. This section will therefore first identify the data limitations of studies that address these questions before proceeding to explore each of these questions to evaluate the nutritional impact of home-delivered meals.

### Data limitations

Questions or caveats about the reliability of data arise in nearly every HDM study, with authors noting the lack of uniformity of definitions and data collection methods (Ponza et al., 1998; Chelimsky, 1991), a set of inconsistencies that is exacerbated by the lack of uniform standards for inclusion in the HDM program to begin with. Ponza et al. (1998) also found that the very frail are sometimes excluded from studies due to their inability to participate, or they may be included using proxy respondents (e.g. a caregiver or spouse) who tend to inaccurately represent the impressions and experiences of the frail HDM participant. Furthermore, in the least costly and therefore most common data collection method, measuring nutrition status relies on 24-hour or 3-day food recall of HDM participants, a population susceptible to memory loss, and many nutritional risk indicators also rely on the memory of the aging population.

Each of the two primary methods for assessing nutrition impact is subject to the above limitations, in addition to its own unique constraints. In the case of longitudinal studies examining the effect of HDM services over time within participants served, the system suffers from a form of selection bias, given that only surviving (and cognitively well) participants are included in follow-up assessments and surveys, creating the potential for positive bias in estimates of nutrition and nutritional risk impact (Keller, 2006, p. 1047). For cross-sectional studies that look at HDM participants compared to non-participants, the limitation is in identifying an appropriate comparison group that effectively controls for all factors. According to Ponza et al. (1998, p. 93-95), the ideal comparison group that enables a rigorous evaluation of the impact of the HDM service itself (and not the impacts of characteristics associated with HDM participation) appears not to exist, leading researchers to choose less desirable alternatives that reduce the validity of their conclusions.

Data quality is also a problem in studies of participant satisfaction with and consumption of the meals. Determining the portion of meals that is consumed by participants and gauging their honest opinions about meal quality is complicated by respondents' concerns that truthful responses could compromise their services (Krassie, Smart, and Roberts, 2000, p. 278). While some responses may be positively biased by their concerns of service exclusion if they express criticism, other responses may be negatively biased by the popular view that, as a charity, the HDM program cannot provide top quality meals (Krassie, Smart, and Roberts, 2000, p. 278).

Understanding that the studies cited below all suffer from one or more of these data limitations, we will proceed with the summary of participant satisfaction and the nutritional impact of home-delivered meals.

**Participant satisfaction**

The question of participant satisfaction with and consumption of home-delivered meals is prevalent in the literature due to the important implications of the question for program effectiveness and minimization of waste. A meal that meets 100 percent of a participant's dietary needs achieves nothing if the participant does not eat the meal, and each uneaten meal item represents wasted resources that could have been more effectively applied in a different way or with a different participant. Furthermore, dissatisfaction with meals can deter HDM participation, reducing the program's impact. Choi (1999, p. 401), in her analysis of the determinants of elders' lengths of stay in HDM programs, found that dissatisfaction with the quality of the meals, food preferences, and/or poor appetite was the third most common reason for discontinuing their participation in the HDM program, after relocation and regaining the ability to cook for oneself. As a result, the question of participant satisfaction is crucial and thoroughly addressed in the HDM literature.

The majority of participants are satisfied with their home-delivered meals. Frongillo et al. (2010, p. 220), in their 2004-05 telephone survey of 1500 New York City HDM participants, found that 77 percent of participants were satisfied overall with their HDM program in terms of "taste, variety, ease of preparation, healthiness, and appropriateness for religious and cultural needs," with satisfaction ranging from 67 percent for "variety" to 84 percent for "appropriate for religious and cultural needs". Lirette et al. found a similar result in their 2007 assessment of satisfaction with the Edmonton (Canada) HDM program, stating that "[t]he majority (72% to 88%) of hot meal clients were satisfied with the taste, texture, value, variety, and portion size of their meals" (p. 214). Fogler-Levitt et al. (1995, p. 554) estimated that recipients consumed 81 percent of the home-delivered meal components on average, and the two primary reasons for not consuming a meal component were sharing the meal and dislike of the meal (p. 556).

Of those who were dissatisfied with their HDM service, the expressed dissatisfaction related to the type or quality of the food provided. Fogler-Levitt et al. (1995, p. 556) found that "[p]oor taste, unpopular cooking method, disagreeable texture, and/or unfamiliarity were indicated for approximately half of the rejected items." Lirette et al. (2007, p. 215) said the main issue of concern was "overcooked, tough, or dry foods that were difficult to chew," but also noted that vegetables of the brassica family were poorly tolerated and commonly disliked.

The importance of satisfaction with meals has inspired support in the literature for participant choice in the contents of their meals. Frongillo et al. (2010, p. 220-222) found that almost half of participants said it was important to choose the food they ate, but 65 percent said their HDM program didn't allow meal choice. Kretser et al. (2003) argued that allowing participant choice could greatly improve the effectiveness of HDM

programs. “Dietitians need to honor personal food choices as much as possible to assist this vulnerable population to meet their nutrient requirements,” they concluded (p. 336). If participant choice can increase meal utilization, and if the meals contain the proper nutrients, then participant choice may very well enable a greater impact of HDMs on participant nutrition.

Having concluded that participant satisfaction with HDMs is quite high but could be improved with improved cooking methods and greater participant choice of meal options, we turn now to the literature regarding the nutritional impacts of consumed home-delivered meals.

**Nutritional impact of HDMs**

The positive nutritional impact of home-delivered meals is essential to achieving the program goals of improved health and avoidance (or delay) of the higher-cost alternative of institutionalization for the homebound elderly. While we know, based on program requirements and the rare study (Shovic, 1997), that HDMs contain nutritional value, we also know that HDM applicants and the elderly population as a whole are at higher risk for malnutrition (Coulston and Voss, 1996) and poor nutrient absorption due to a range of physical, social, and behavioral factors (Ponza et al., 1998, p. 38-41, 86-88). The literature examines the nutritional impact of HDMs using two analytical methods, neither of which is exempt from the empirical challenges summarized in the **Data Limitations** section above. In the first method, studies compare the nutrition and health of HDM participants to a comparison group of non-participants. In the second, they follow groups of HDM participants over time to determine the impact on the individual, controlling for changes in age and other important factors. We will summarize each of these bodies of literature in the remainder of this section.

The method of comparing outcomes between HDM participants and matched non-participants appears to have been much more popular in the earlier literature, with a long list of studies taking place in the late 1970’s and early 1980’s (see Ponza et al. 1998, p. 94-96) finding support for the positive impact of HDMs in participants relative to the comparison group. Among recent studies, Millen et al. (2002) looked at nationally representative samples of participants in the Elderly Nutrition Program (ENP) and closely matched non-participants,[15] finding that participants were better nourished and achieved higher levels

[15] Non-participants were matched to participants based on income and disability status. Of the 1,848 ENP participants included in the study, 818 were homebound and 1,040 were ambulatory. The authors illustrate the nutritional impact on the group of ENP participants, but do not distinguish this impact between homebound and ambulatory populations. They do, however, specify that both homebound and ambulatory participants benefited from the significant positive social impact of the ENP relative to non-participants.

of socialization (p. 234).[16] Participant intake of nearly all essential nutrients (total energy, protein, vitamins A, C, D, E, B-6, thiamin, riboflavin, niacin, folate, calcium, magnesium, zinc, and phosphorus) was significantly higher than for non-participants (p. 238).

Other studies discern the nutritional impact of HDM services by following a set of participants over time. Frongillo and Wolfe (2010) completed one such study in New York, finding that "participants improved significantly in some variables for dietary patterns, nutrient intake, and nutrient density, and were less likely to be food insecure," after receiving meals for six months (p. 294). To verify their results, they also compared participants to a group of matched non-participants, and found that participant improvement in most dietary intake variables was greater than either the non-participant comparison group or HDM participants who did not eat a home-delivered meal on the day of assessment (p. 294). Keller found similar results in her 2006 study of HDM participants in Ontario, Canada. After completing baseline and 18-month follow-up interviews with 263 participants and controlling for the effect of other meal assistance and informal assistance, Keller found that nutritional risk was significantly reduced by HDM participation (p. 1047).

Finally, one study combines these two approaches in a quasi-experimental design, exploring the changes in nutrient and energy intake within HDM participants over time and comparing those changes to the changes in intake among a similar group of seniors who applied for food-related home help. Roy and Payette (2006) found that nutrient and energy intake in HDM participants increased after eight weeks of receiving HDMs, while the control group's intake remained constant. The positive changes in energy, protein, total fat, and thiamin intakes for the HDM participant group were significantly different from the changes in the control group, indicating that HDMs provide enhanced nutrition for participants. Despite its strong empirical approach, this study's small sample size (51 people) limits the significance of its results and their applicability. Nonetheless, though the recent literature is fairly limited on the nutritional impact of HDMs, and though the studies are all subject to scrutiny of their imperfect data sets, all studies consistently and overwhelmingly point to a significant positive impact of the service on the nutrition of its participants.

A related method of evaluating the impact of HDM programs is to examine studies of enhanced HDM services and their impact on participant nutrition. Pilot evaluations of a program offering 21 meals and 14 snacks per week and another offering home-delivered breakfasts (in addition to the traditional lunch) have produced encouraging results in participants. In one pilot program, more than 200 new HDM enrollees were randomly assigned to receive the traditional program of five meals per week or the comprehensive program of three meals and two snacks per day and were evaluated at baseline, three months, and six months (Kretser et al., 2003). While they found that the Mini Nutrition

[16] Socialization is defined as the number of monthly social contacts.

Assessment (MNA) scores for both groups increased at both three and six months, they found that the scores of those in the comprehensive program increased more (39 percent for the comprehensive program compared to 19 percent for the traditional program at three months), though the difference between programs was not statistically significant. On the other hand, those in the comprehensive program (including the malnourished) gained significantly more weight, were more likely to continue living independently, and had significantly lower levels of mortality than those in the traditional program (Kretser et al., 2003, p. 332-333).

In a less extreme example, comparing HDM participants who received both breakfast and lunch to those receiving only lunch, Gollub and Weddle (2004, p. 1227) found that breakfast group participants "had greater energy/nutrient intakes (P<.05), greater levels of food security (P<.05), and fewer depressive symptoms (P<.05) than comparison group participants." Breakfast group participants consumed more calories and higher amounts of protein, fiber, carbohydrates, and nearly all vitamins and minerals tested. Those receiving breakfast also enjoyed food more and had a higher quality of health according to two indexed sets of questions related to these issues (Gollub and Weddle, 2004, p. 1231). In both pilot programs, participants in enhanced HDM programs experienced greater nutritional improvement from the programs, providing support for the positive nutritional impact of HDM programs overall and suggesting that targeted enhanced programs could improve the health and delay institutionalization of the very malnourished elderly.

# *Appendix II: Participant nutrition and functional ability assessment*

## Nutritional risk Assessment[17]

1. Have you changed the way you eat due to illness or medical condition?
2. Do you eat less than 2 meals a day?
3. Do you eat few fruits or vegetables or milk products?
4. Do you have 3 or more drinks of beer, liquor or wine almost every day?
5. Do you have tooth or mouth problems that make it hard to eat?
6. Are there times when you don't have enough money to buy the food you need?
7. Do you eat alone most of the time?
8. Do you take 3 or more prescribed or over-the-counter drugs each day?
9. Have you lost or gained 10 pounds in the last 6 months without wanting to?
10. Are there times when you are not physically able to shop, cook or feed yourself?[16]

## Activities of Daily Living

1. Can you walk around inside without any help?
2. Can you sit up or move around in bed without any help?
3. Can you comb your hair, shave, wash your face, or brush your teeth without any help?
4. Can you get in and out of bed or chair without any help?
5. Can you bathe or shower without any help?
6. Can you use the toilet without any help?
7. Can you dress without any help?
8. Can you manage eating without any help?

## Independent Activities of Daily Living

1. Can you answer the telephone or make a phone call without help?
2. Can you shop for food and other things you need without help?
3. Can you prepare meals for yourself without help?
4. Can you do light housekeeping, like dusting or sweeping, without help?
5. Can you do heavy housecleaning, like yard work and laundry, without any help?
6. Can you take your medications without help?
7. Can you handle your own money, like keeping track of bills without help?
8. Can you use public transportation or drive beyond walking distances without help?

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[17] Due to Presbyterian Homes' use of an outdated nutrition assessment form for approximately 44% of cases during the sampling time frame, nutrition scores were calculated for all providers based on only nine of ten nutrition assessment questions (Question 10 – "Are there times when you are not physically able to shop, cook, or feed yourself?" – is excluded). To ensure that the relative importance of each question remained intact, the values of the nine questions were summed and divided by nine, and nutritional risk was determined by dividing each normal nutritional risk threshold (Above 6 = high, 2-5 = medium, below 2 = low) by nine and applying those thresholds to the averaged nutrition scores. Reported nutritional risk figures reflect 86% of Scott-Carver-Dakota CAP clients, 89% of Presbyterian Homes clients, and 91% of Volunteers of America clients.

# *Appendix III - Tables*

### A1a. Minnesota and metro area meals totals, 2010-2011

| | Statewide | | Twin Cities Metro | |
|---|---|---|---|---|
| | 2010 | 2011 | 2010 | 2011 |
| # of Title III HDM | 970,242 | 921,265 | 215,188 | 167,363 |
| # of HDM clients | 13,512 | 12,804 | 2,167 | 1,472 |
| Total HDM expenditures | $6,940,192 | $6,610,491 | $1,679,470 | $1,286,814 |

## A1b. Title III provider summary January 1, 2011, to September 30, 2011

| Title III Meals Provider | Presbyterian Homes | Scott-Carver-Dakota CAP | Volunteers of America – Minnesota: VOA Subcontractors: CEAP | CES | JFCS | NE Dinner Bell | North Mpls. MOW | TRUST, Inc. | VOA Minnesota |
|---|---|---|---|---|---|---|---|---|---|
| Caterer | Presbyterian Homes Commissary (Internal) | Lancer Catering & Talheim Care Center | Lancer Catering | Augustana (Table Talk) | Sholom Home West | Augustana (Table Talk) | St. Olaf Residence | Walker Methodist & Redeemer Residence | Lucky Dragon |
| Total Title III meals* | 60,454 | 23,411 | 4,624 | 4,868 | 949 | 6,427 | 10,992 | 8,262 | 4,811 |
| Percentage delivered hot | 21% | 90% | 54% | 88% | 100% | 60% | 100% | 100% | 92% |
| Percentage delivered frozen | 71% | 5% | 22% | 4% | - | - | - | - | 8% |
| Percentage delivered cold | 8% | 5% | 24% | 8% | - | 40% | - | - | - |
| Average number of Title III meals delivered per weekday* | 310 | 120 | 24 | 25 | 5 | 33 | 56 | 42 | 25 |
| Average Title III participant meal contribution | $1.34 | $3.16 | $2.33 | $1.67 | $3.12 | $4.05 | $0.55 | $2.71 | - |
| Estimated number of volunteer hours for Title III | 2,192 | 3,220 | 1,946 | 522 | - | 1,500 | 1,272 | 1,840 | - |
| Delivery driver system | Paid and volunteer | Volunteer | Volunteer | Paid and volunteer | Paid | Volunteer | Paid and volunteer | Volunteer | Paid |

*Notes: All figures are based on data reported by Title III meal providers. Weekend meals are contained within the figure of meals delivered per weekday, as meals for the weekend are generally delivered on weekdays.*

**Meal totals are based on meals reimbursed by MAAA.*

## A2. Income of HDM program participants

| | | Presbyterian Homes N=371 | | Scott-Carver-Dakota CAP N=175 | | Volunteers of America N=246 | | All participants N=792 | |
|---|---|---|---|---|---|---|---|---|---|
| | | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| White | Income below poverty line | 101 | 43.2% | 21 | 12.2% | 62 | 35.4% | 184 | 31.7% |
| | Income between 100-200% of poverty line | 83 | 35.5% | 108 | 62.8% | 92 | 52.6% | 283 | 48.7% |
| | Income above 200% of poverty line | 50 | 21.4% | 43 | 25.0% | 21 | 12.0% | 114 | 19.6% |
| Nonwhite | Income below poverty line | 114 | 83.2% | - | - | 53 | 74.6% | 167 | 79.1% |
| | Income between 100-200% of poverty line | 16 | 11.7% | 1 | 33.3% | 16 | 22.5% | 33 | 15.6% |
| | Income above 200% of poverty line | 7 | 5.1% | 2 | 66.7% | 2 | 2.8% | 11 | 5.2% |
| Total | Income below poverty line | 215 | 58.0% | 21 | 12.0% | 115 | 46.7% | 351 | 44.3% |
| | Income between 100-200% of poverty line | 99 | 26.7% | 109 | 62.3% | 108 | 43.9% | 316 | 39.9% |
| | Income above 200% of poverty line | 57 | 15.4% | 45 | 25.7% | 23 | 9.3% | 125 | 15.8% |

*Source:* *MAAA (Region 11) data from the National Aging Program Information Services database using MN103 for Presbyterian Homes, Scott-Carver-Dakota CAP, and Volunteers of America clients served between 04/01/2011 and 09/01/2011.*

*Note:* *Income is unknown for 72 Presbyterian Homes clients, 42 CAP clients, and 48 VOA clients.*

## A3. Participant nutritional risk, meals received, and independence of daily living

| | | Presbyterian Homes N=443 | | Scott-Carver-Dakota CAP N=217 | | Volunteers of America N=294 | | All participants N=954 | |
|---|---|---|---|---|---|---|---|---|---|
| | | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| Nutritional risk | Low | 23 | 5.9% | 41 | 22.0% | 46 | 17.2% | 110 | 13.0% |
| | Medium | 69 | 17.6% | 68 | 36.6% | 66 | 24.6% | 203 | 24.0% |
| | High | 301 | 76.6% | 77 | 41.4% | 156 | 58.2% | 534 | 63.0% |
| Average units per week from April - August | 1-2 | 53 | 12.0% | 68 | 31.3% | 45 | 15.3% | 166 | 17.4% |
| | 3-4 | 73 | 16.5% | 51 | 23.5% | 66 | 22.4% | 190 | 19.9% |
| | 5-6 | 134 | 30.2% | 91 | 41.9% | 107 | 36.4% | 332 | 34.8% |
| | 7+ | 183** | 41.3% | 7 | 3.2% | 76 | 25.9% | 266 | 27.9% |
| | Average | 6 | - | 4 | - | 5 | - | 5 | - |
| Number of ADL challenges | 0 | 177 | 45.4% | 139 | 67.8% | 131 | 51.2% | 447 | 52.5% |
| | 1-2 | 157 | 40.3% | 53 | 25.9% | 95 | 37.1% | 305 | 35.8% |
| | 3-5 | 34 | 8.7% | 8 | 3.9% | 22 | 8.6% | 64 | 7.5% |
| | 6-8 | 22 | 5.6% | 5 | 2.4% | 8 | 3.1% | 35 | 4.1% |
| Number of IADL challenges | 0-1 | 22 | 8.1% | 54 | 27.8% | 12 | 4.7% | 88 | 12.2% |
| | 2-3 | 65 | 23.8% | 58 | 29.9% | 53 | 20.8% | 176 | 24.4% |
| | 4-5 | 87 | 31.9% | 53 | 27.3% | 117 | 45.9% | 257 | 35.6% |
| | 6-8 | 99 | 36.3% | 29 | 14.9% | 73 | 28.6% | 201 | 27.8% |

***Sources**: MAAA (Region 11) data from the National Aging Program Information Services database using MN103 (nutritional risk, ADLs, IADLs) and SC13b (meals received monthly) for Presbyterian Homes, Scott-Carver-Dakota CAP, and Volunteers of America clients served between 04/01/2011 and 09/01/2011.*

***Notes:** Nutritional risk levels are as of most recent assessment. Activities of Daily Living (ADL), Independent Activities of Daily Living (IADL), and Nutritional Risk questionnaires are listed in the appendix. Average meals per week is calculated based on four weeks per month and reflects only those months in which the client received one or more meals.*

**See note in Appendix II regarding our calculation of nutritional risk for the purposes of this study. Reported nutritional risk figures reflect 86% of Scott-Carver-Dakota CAP clients, 89% of Presbyterian Homes clients, and 91% of Volunteers of America clients.*

***These meal averages are noticeably higher than the client-reported meal totals listed in Table 6. The high number of Presbyterian Homes clients receiving more than seven meals per week may be a result of entering meals in the system after the month in which the meals were delivered. Delayed reporting is permitted by the MAAA contract.*

## A4. Respondent nutritional risk, meals received, and independence of daily living

| | | Presbyterian Homes N=88 | | Scott-Carver-Dakota CAP N=52 | | Volunteers of America N=69 | | All Respondents N=209 | |
|---|---|---|---|---|---|---|---|---|---|
| | | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| Nutritional risk | Low | 4 | 5% | 11 | 23% | 7 | 11% | 22 | 12% |
| | Medium | 12 | 16% | 21 | 44% | 18 | 29% | 51 | 28% |
| | High | 59 | 79% | 16 | 33% | 37 | 60% | 112 | 61% |
| Meals received per week | 1-3 | 12 | 16% | 10 | 25% | 11 | 18% | 33 | 19% |
| | 4-6 | 42 | 56% | 29 | 73% | 35 | 57% | 106 | 60% |
| | 7+ | 21 | 28% | 1 | 3% | 15 | 25% | 37 | 21% |
| | Average | 5 | - | 4 | - | 5 | - | 5 | - |
| Number of ADL challenges | 0 | 39 | 51% | 31 | 66% | 34 | 55% | 104 | 56% |
| | 1-2 | 34 | 44% | 13 | 28% | 21 | 34% | 68 | 37% |
| | 3-8 | 4 | 5% | 3 | 6% | 7 | 11% | 14 | 7% |
| Number of IADL challenges | 0-1 | 9 | 17% | 15 | 32% | 1 | 2% | 25 | 15% |
| | 2-3 | 18 | 34% | 14 | 30% | 14 | 22% | 46 | 28% |
| | 4-5 | 17 | 32% | 12 | 26% | 29 | 46% | 58 | 36% |
| | 6-8 | 9 | 17% | 6 | 13% | 19 | 30% | 34 | 21% |

*Sources*: *MAAA (Region 11) data from the National Aging Program Information Services database using MN102 (nutritional risk), MN04a (Independence – ADLs and IADLs), and SC13b (meals received monthly) for Presbyterian Homes, Scott-Carver-Dakota CAP, and Volunteers of America clients served between 04/01/2011 and 08/30/2011.*

**Due to Presbyterian Homes' use of an outdated nutrition assessment form for approximately 46% of cases during the sampling time frame, nutrition scores were calculated for all providers based on only nine of ten nutrition assessment questions (Question 10 – "Are there times when you are not physically able to shop, cook, or feed yourself?" – is excluded). To ensure that the relative importance of each question remained intact, the values of the nine questions were summed and divided by nine, and nutritional risk was determined by dividing each normal nutritional risk threshold (Above 6 = high, 2-5 = medium, below 2 = low) by nine and applying those thresholds to the averaged nutrition scores. Data for nutritional risk, ADLs, and IADLs are incomplete, with 5-15% of cases missing across providers.*

*Nutritional risk levels are as of most recent assessment. Activities of Daily Living (ADL), Independent Activities of Daily Living (IADL), and Nutritional risk questionnaires are listed in the appendix.*

## A5. Respondent health indicators

| | Presbyterian Homes N=75 | | Scott-Carver-Dakota CAP N=40 | | Volunteers of America N=61 | | All Respondents N=176 | |
|---|---|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| **In general, how would you rate your health?** | | | | | | | | |
| Excellent | 7 | 10% | 3 | 8% | 8 | 13% | 18 | 10% |
| Good | 35 | 48% | 24 | 62% | 25 | 42% | 84 | 49% |
| Fair | 23 | 32% | 9 | 23% | 19 | 32% | 51 | 30% |
| Poor | 8 | 11% | 3 | 8% | 8 | 13% | 19 | 11% |
| **During the past year, have you been hospitalized overnight or longer?** (% yes) | 20 | 27% | 13 | 33% | 26 | 43% | 59 | 34% |
| **Are you on any kind of special diet?** (% yes) | 19 | 25% | 8 | 20% | 20 | 33% | 47 | 27% |
| **Do you get help with…** (% yes) | | | | | | | | |
| Housekeeping, laundry, grocery shopping or heavy household chores? | 59 | 79% | 35 | 88% | 46 | 75% | 140 | 80% |
| Weekend or evening meals that are not part of your Home-delivered meals program? | 26 | 35% | 16 | 40% | 22 | 36% | 64 | 36% |
| Personal daily cares such as bathing, dressing, or taking medications? | 13 | 17% | 15 | 38% | 20 | 33% | 48 | 27% |
| Something else? | 12 | 16% | 6 | 15% | 12 | 20% | 30 | 17% |
| **Number of types of help received** | | | | | | | | |
| 0 | 12 | 16% | 4 | 10% | 12 | 20% | 28 | 16% |
| 1 – 2 | 52 | 68% | 25 | 63% | 31 | 51% | 108 | 61% |
| 3 – 5 | 12 | 16% | 11 | 28% | 18 | 30% | 41 | 23% |

## A6. Meal consumption by demographics

| | | All of it | Most of it | Some of it | Only a little or none of it | N |
|---|---|---|---|---|---|---|
| Income* | Below poverty line | 46%* | 32% | 20% | 2% | 56 |
| | Between 100-200% of poverty line | 57%* | 21% | 16% | 6% | 68 |
| | Above 200% of poverty line | 75%* | 20% | - | 5% | 20 |
| Age | Under 65 | 69% | 8% | 23% | - | 13 |
| | 65-74 | 49% | 40% | 9% | 3% | 35 |
| | 75-84 | 56% | 27% | 15% | 2% | 55 |
| | 85 and over | 54% | 28% | 13% | 6% | 69 |
| Race[18] | White | 54% | 30% | 13% | 4% | 141 |
| | Nonwhite | 61% | 18% | 18% | 4% | 28 |
| Sex* | Female | 47%* | 30% | 19% | 4% | 108 |
| | Male | 67%* | 27% | 3% | 3% | 64 |
| Total | | 55% | 28% | 13% | 3% | 172 |

** Statistically significant (at the 5% level) difference within the category.*

[18] Due to small sample sizes and the need for the greatest possible degree of respondent confidentiality, race has been collapsed to “white” and “nonwhite.”

### A7. Meal consumption by health

| | | All of it | Most of it | Some of it | Only a little or none of it | N |
|---|---|---|---|---|---|---|
| Self-reported health | Excellent or Good | 54% | 29% | 15% | 2% | 99 |
| | Fair or Poor | 55% | 29% | 12% | 4% | 69 |
| Nutritional risk* | Low | 67%* | 17% | 11% | 6% | 18 |
| | Medium | 68%* | 17% | 12% | 2% | 41 |
| | High | 45%* | 37% | 14% | 3% | 91 |
| Number of ADL challenges* | 0 | 61%* | 29% | 9% | 1% | 82 |
| | 1 | 46%* | 29% | 21% | 4% | 52 |
| | 2+ | 44%* | 33% | 6% | 17% | 18 |
| Number of IADL challenges | 0-1 | 65% | 15% | 20% | 0% | 20 |
| | 2-4 | 49% | 38% | 11% | 2% | 65 |
| | 5-8 | 52% | 27% | 12% | 10% | 52 |
| Total | | 55% | 28% | 13% | 3% | 168 |

** Statistically significant (at the 5% level) difference within the category*

## A8. Meal satisfaction by demographics

| | | Variety | Nutritional value | Taste | Appearance | N |
|---|---|---|---|---|---|---|
| Income | Below poverty line | 86% | 91% | 82%* | 93% | 57 |
| | Between 100-200% of poverty line | 84% | 91% | 82%* | 88% | 69 |
| | Above 200% of poverty line | 95% | 85% | 60%* | 86% | 22 |
| Age | Under 65 | 86% | 93% | 71% | 93% | 14 |
| | 65-74 | 86% | 88% | 69% | 94% | 36 |
| | 75-84 | 89% | 94% | 87% | 91% | 56 |
| | 85+ | 85% | 88% | 79% | 87% | 68 |
| Race | White | 87% | 90% | 79% | 90% | 144 |
| | Nonwhite | 93% | 93% | 79% | 93% | 28 |
| Sex | Female | 87% | 88% | 79% | 90% | 112 |
| | Male | 86% | 95% | 79% | 90% | 63 |
| Total | | 87% | 90% | 79% | 90% | 174 |

*Notes:* *Reported percentages are the percentage of respondents who replied "Excellent" or "Good" for each measure of meal quality.*

** Statistically significant (at the 5% level) difference within the category.*

## A9. Meal satisfaction by health

| | | Variety | Nutritional value | Taste | Appearance | N |
|---|---|---|---|---|---|---|
| Self-reported health | Excellent or good | 91% | 94% | 85%* | 95%* | 101 |
| | Fair or poor | 83% | 87% | 72%* | 84%* | 70 |
| Nutritional risk | Low | 79% | 94% | 84% | 94% | 19 |
| | Medium | 83% | 95% | 76% | 83% | 41 |
| | High | 90% | 89% | 80% | 92% | 94 |
| Number of ADL challenges | 0 | 89% | 95%* | 78% | 92%* | 84 |
| | 1 | 83% | 88%* | 80% | 92%* | 52 |
| | 2+ | 83% | 75%* | 72% | 67%* | 18 |
| Number of IADL challenges | 0-1 | 90% | 90% | 90% | 95% | 21 |
| | 2-4 | 88% | 93% | 83% | 92% | 64 |
| | 5-8 | 81% | 88% | 77% | 87% | 53 |
| Total | | 87% | 90% | 79% | 90% | 171 |

***Notes:*** *Reported percentages are the percentage of respondents who replied "Excellent" or "Good" for each measure of meal quality.*

** Statistically significant (at the 5% level) difference within the category.*

## A10. Meal satisfaction by caterer

| | Variety | Nutritional value | Taste | Appearance | Average | N |
|---|---|---|---|---|---|---|
| Pres Homes Commissary (incl. HMONG) | 86% | 83%* | 73% | 86% | 85% | 74 |
| Lancer Catering | 90% | 94% | 80% | 93% | 89% | 40 |
| Table Talk (Augustana) | 73%* | 95% | 86% | 91% | 86% | 22 |
| St. Olaf Nursing Home | 88% | 100% | 83% | 94% | 91% | 18 |
| Other | 95% | 95% | 86% | 95% | 93% | 22 |
| Total | 87% | 90% | 79% | 90% | 87% | 174 |

***Notes:*** *Reported percentages are the percentage of respondents who replied "Excellent" or "Good" for each measure of meal quality. "Other" includes Shalom Home (East and West), Talheim, Walker, and Redeemer, each of which served fewer than ten respondents.*

** Statistically significantly lower than the other caterers (at the 5% level)*

## A11. Health impacts by demographics

| | | Have you noticed any changes in your health since you started receiving home-delivered meals? | | If I did not have this home-delivered meals service... I would eat less well than I do now | | |
|---|---|---|---|---|---|---|
| | | Yes | No | Definitely or probably yes | Probably or definitely not | N |
| Income | Below poverty line | 50%* | 50% | 79% | 21% | 56 |
| | Between 100-200% of poverty line | 19%* | 81% | 75% | 25% | 67 |
| | Above 200% of poverty line | 29%* | 71% | 74% | 26% | 21 |
| Age | Under 65 | 46%* | 54% | 93% | 7% | 14 |
| | 65-74 | 49%* | 51% | 69% | 31% | 36 |
| | 75-84 | 29%* | 71% | 77% | 23% | 53 |
| | 85 and over | 23%* | 77% | 70% | 30% | 69 |
| Race | White | 30% | 70% | 76% | 24% | 140 |
| | Nonwhite | 40% | 60% | 69% | 31% | 26 |
| Sex | Female | 31% | 69% | 78% | 22% | 108 |
| | Male | 33% | 67% | 67% | 33% | 63 |
| Total | | 32% | 68% | 74% | 26% | 169 |

** Statistically significant (at the 5% level) difference within the category.*

## A12. Health impacts by health factors

| | | Have you noticed any changes in your health since you started receiving home-delivered meals? | | If I did not have this home-delivered meals service... I would eat less well than I do now | | |
|---|---|---|---|---|---|---|
| | | Yes | No | Definitely or probably yes | Probably or definitely not | N |
| Self-reported health | Excellent or Good | 28% | 72% | 70% | 30% | 97 |
| | Fair or Poor | 39% | 61% | 80% | 20% | 70 |
| Nutritional risk | Low | 28%* | 72% | 68% | 32% | 19 |
| | Medium | 18%* | 83% | 76% | 24% | 40 |
| | High | 39%* | 61% | 76% | 24% | 91 |
| Number of ADL challenges | 0 | 33% | 67% | 76% | 24% | 82 |
| | 1 | 29% | 71% | 74% | 26% | 50 |
| | 2+ | 24% | 76% | 76% | 24% | 17 |
| Number of IADL challenges | 0-1 | 15% | 85% | 76% | 24% | 21 |
| | 2-4 | 34% | 66% | 76% | 24% | 65 |
| | 5-8 | 31% | 69% | 71% | 29% | 52 |
| Total | | 32% | 68% | 74% | 26% | 169 |

** Statistically significant (at the 5% level) difference within the category.*

## A13. Health impacts by meal type, demographics, and health

| | | Have you noticed any changes in your health since you started receiving home-delivered meals?[a] | | If I did not have this home-delivered meals service...I would eat less well than I do now[b] | | |
|---|---|---|---|---|---|---|
| | | Hot | Frozen | Hot | Frozen | N |
| Age | Under 65 | 50% | 43% | 100% | 86% | 14 |
| | 65-74 | 53% | 44% | 85%* | 50%* | 36 |
| | 75-84 | 29% | 27% | 84% | 60% | 53 |
| | 85 and over | 26% | 18% | 73% | 62% | 69 |
| Income | Below poverty line | 52% | 48% | 86% | 67% | 56 |
| | Between 100-200% of poverty line | 20% | 18% | 76% | 71% | 67 |
| | Above 200% of poverty line | 30% | 27% | 89% | 60% | 21 |
| Sex | Female | 30% | 32% | 84%* | 66%* | 140 |
| | Male | 45% | 27% | 75% | 52% | 27 |
| Race | White | 31% | 31% | 81% | 69% | 108 |
| | Nonwhite | 37% | 20% | 82%* | -* | 63 |
| Self-reported health | Excellent or Good | 27% | 29% | 78%* | 55%* | 98 |
| | Fair or Poor | 44% | 32% | 84% | 72% | 70 |
| Number of ADL challenges | 0 | 38% | 24% | 88%* | 48%* | 82 |
| | 1 | 22% | 36% | 77% | 71% | 51 |
| | 2+ | 29% | - | 71% | 100% | 17 |
| Number of IADL challenges | 0-1 | 8% | 25% | 85% | 63% | 21 |
| | 2-4 | 38% | 27% | 89%* | 56%* | 65 |
| | 5+ | 33% | 20% | 74% | 60% | 52 |
| Nutritional risk | Low | 36% | - | 87%* | -* | 19 |
| | Medium | 17% | 20% | 79% | 67% | 40 |
| | High | 39% | 38% | 81% | 68% | 91 |
| **Total** | | 33% | 30% | 81% | 61% | 170 |

** Statistically significant (at the 5% level) difference within the category.*

*[a] Percent saying "yes"*

*[b] Percent saying "probably yes" or "definitely yes"*

## A14. Impact on independent living by health

| | | If I did not have this home-delivered meals service… | | | | |
|---|---|---|---|---|---|---|
| | | I could manage my daily meals okay on my own. | I could get help with my daily meals from a family member or a friend. | It would be hard to stay where I am living now. | I would have to go live somewhere else. | N |
| Self-reported health | Excellent or Good | 64% | 42% | 42% | 18% | 102 |
| | Fair or Poor | 49% | 42% | 52% | 26% | 69 |
| Nutritional risk | Low | 79%* | 53%* | 33% | 17% | 19 |
| | Medium | 56%* | 53%* | 50% | 16% | 40 |
| | High | 52%* | 34%* | 49% | 24% | 93 |
| Number of ADL challenges | 0 | 64%* | 40% | 45% | 13%* | 84 |
| | 1 | 52%* | 41% | 46% | 30%* | 52 |
| | 2+ | 29%* | 41% | 63% | 35%* | 17 |
| Number of IADL challenges | 0-1 | 76%* | 38%* | 21%* | 5%* | 21 |
| | 2-4 | 64%* | 37%* | 42%* | 16%* | 64 |
| | 5-8 | 40%* | 55%* | 55%* | 33%* | 52 |

*Note:* *Reported percentages are the percentage of respondents who replied "definitely yes" or "probably yes" for each statement.*

** Statistically significant (at the 5% level) difference within the category.*

## A15. Impact on independent living by meal type

| | | If I did not have this home-delivered meals service… | | | | |
|---|---|---|---|---|---|---|
| | | I could manage my daily meals okay on my own. | I could get help with my daily meals from a family member or a friend. | It would be hard to stay where I am living now. | I would have to go live somewhere else. | N |
| Meal type | Hot | 56% | 46% | 47% | 25% | 112 |
| | Frozen | 61% | 34% | 46% | 15% | 61 |
| # Meals received per week | 1-3 | 70% | 59%* | 35% | 15% | 33 |
| | 4-6 | 57% | 42%* | 49% | 23% | 102 |
| | 7+ | 51% | 27%* | 46% | 19% | 37 |
| Delivery type | Paid | 60% | 40% | 52% | 25% | 104 |
| | Volunteer | 58% | 40% | 43% | 16% | 48 |

*Note:* *Reported percentages are the percentage of respondents who replied "definitely yes" or "probably yes" for each statement.*

** Statistically significant (at the 5% level) difference within the category.*

## A16. Impact on independent living by meal type, demographics, and health

| | | I could manage my daily meals okay on my own | | I could get help with my daily meals from a family member or a friend. | | It would be hard to stay where I am living now. | | I would have to go live somewhere else. | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Hot | Frozen | Hot | Frozen | Hot | Frozen | Hot | Frozen | N |
| Age | Under 65 | 57% | 29% | 14% | - | 33% | 40% | 17% | - | 14 |
| | 65-74 | 65% | 69% | 60%* | 13%* | 42% | 38% | 32% | 19% | 36 |
| | 75-84 | 53%* | 88%* | 30% | 47% | 46% | 56% | 14% | 6% | 54 |
| | 85 and over | 55% | 45% | 57% | 52% | 51% | 45% | 32% | 23% | 69 |
| Income | Below poverty line | 44% | 50% | 43% | 20% | 59% | 50% | 22% | 14% | 57 |
| | Between 100-200% of poverty line | 66% | 59% | 55% | 31% | 31%* | 59%* | 24% | 31% | 68 |
| | Above 200% of poverty line | 70% | 67% | 50% | 36% | 56% | 30% | 38%* | -* | 22 |
| Self-reported health | Excellent or Good | 62% | 67% | 45% | 36% | 42% | 42% | 22% | 11% | 102 |
| | Fair or Poor | 48% | 50% | 48% | 32% | 51% | 52% | 30% | 20% | 69 |
| Number of ADL challenges | 0 | 67% | 59% | 40% | 40% | 45% | 46% | 17% | 4% | 84 |
| | 1 | 48% | 56% | 52% | 29% | 46% | 46% | 31% | 29% | 52 |
| | 2+ | 29% | 33% | 50% | - | 62% | 67% | 36% | 33% | 17 |
| Number of IADL challenges | 0-1 | 77% | 75% | 46% | 25% | 27% | 13% | 9% | - | 21 |
| | 2-4 | 66% | 62% | 32% | 46% | 43% | 42% | 19% | 12% | 64 |
| | 5+ | 40% | 40% | 59% | 40% | 54% | 60% | 32% | 40% | 52 |
| Nutritional risk | Low | 80% | 75% | 47% | 75% | 43% | - | 21% | - | 19 |
| | Medium | 59% | 50% | 53% | 50% | 44% | 67% | 19% | 10% | 40 |
| | High | 48% | 57% | 43%* | 20%* | 50% | 49% | 28% | 19% | 93 |
| Total | | 56% | 61% | 46% | 34% | 47% | 46% | 25% | 15% | 173 |

*Note:* *Reported percentages are the percentage of respondents who replied "definitely yes" or "probably yes" for each statement.*

** Statistically significant (at the 5% level) difference within the category*

## A17. Contact with others by demographics

| | | How often do you have contact with friends or family? | | | If I did not have this home-delivered meals service... I would have little daily contact with people | | |
|---|---|---|---|---|---|---|---|
| | | Daily or almost daily | Once or twice a week | Less than once a week | Definitely or probably yes | Probably or definitely not | N |
| Income | Below poverty line | 68% | 25% | 7% | 42% | 58% | 57 |
| | Between 100-200% of poverty line | 65% | 28% | 7% | 43% | 57% | 68 |
| | Above 200% of poverty line | 86% | 9% | 5% | 29% | 71% | 22 |
| Age | Under 65 | 64% | 29% | 7% | 54% | 46% | 14 |
| | 65-74 | 64% | 28% | 8% | 33% | 67% | 36 |
| | 75-84 | 73% | 18% | 9% | 34% | 66% | 56 |
| | 85 and over | 75% | 20% | 4% | 41% | 59% | 69 |
| Race | White | 69% | 24% | 7% | 38% | 63% | 144 |
| | Nonwhite | 82% | 11% | 7% | 41% | 59% | 28 |
| Sex | Female | 71% | 23% | 5% | 38% | 62% | 111 |
| | Male | 72% | 19% | 9% | 38% | 62% | 64 |
| Total | | 71% | 22% | 7% | 38% | 62% | 175 |

** Statistically significant (at the 5% level) difference within the category.*

## A18. Contact with others by health

| | | How often do you have contact with friends or family? | | | If I did not have this home-delivered meals service...I would have little daily contact with people | | |
|---|---|---|---|---|---|---|---|
| | | Daily or almost daily | Once or twice a week | Less than once a week | Definitely or probably yes | Probably or definitely not | N |
| Self-reported health | Excellent or Good | 79%* | 19%* | 2%* | 33% | 67% | 101 |
| | Fair or Poor | 61%* | 24%* | 14%* | 46% | 54% | 70 |
| Nutritional risk | Low | 74% | 21% | 5% | 22% | 78% | 19 |
| | Medium | 68% | 29% | 2% | 47% | 53% | 41 |
| | High | 71% | 20% | 9% | 39% | 61% | 93 |
| Number of ADL challenges | 0 | 80% | 16% | 4% | 31% | 69% | 85 |
| | 1 | 62% | 27% | 12% | 49% | 51% | 52 |
| | 2-8 | 71% | 24% | 6% | 41% | 59% | 17 |
| Number of IADL challenges | 0-1 | 76% | 19% | 5% | 15%* | 85%* | 21 |
| | 2-4 | 74% | 15% | 11% | 36%* | 64%* | 65 |
| | 5-8 | 69% | 29% | 2% | 50%* | 50%* | 52 |
| Total | | 71% | 22% | 7% | 38% | 62% | 175 |

** Statistically significant (at the 5% level) difference within the category.*

## A19. Contact with others by meal type

| | | How often do you have contact with friends or family? | | | If I did not have this home-delivered meals service...I would have little daily contact with people | | |
|---|---|---|---|---|---|---|---|
| | | Daily or almost daily | Once or twice a week | Less than once a week | Definitely or probably yes | Probably or definitely not | N |
| Meal type | Hot | 73% | 19% | 8% | 44%* | 56%* | 113 |
| | Frozen | 69% | 26% | 5% | 27%* | 73%* | 62 |
| Delivery type | Volunteer | 67% | 25% | 8% | 43% | 57% | 106 |
| | Paid | 75% | 17% | 8% | 28% | 72% | 48 |
| # Meals received per week | 1-3 | 67% | 27% | 6% | 31% | 69% | 33 |
| | 4-6 | 75% | 19% | 6% | 40% | 60% | 104 |
| | 7+ | 68% | 22% | 11% | 39% | 61% | 37 |
| | Total | 71% | 22% | 7% | 38% | 62% | 175 |

** Statistically significant (at the 5% level) difference within the category.*

## A20. Interactions with meal deliverers by demographics

| | | The people who deliver my meals treat me with respect. | | | The people who deliver my meals are courteous and friendly. | | | The people who deliver my meals take time to talk with me | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Strongly agree | Agree | Disagree/ Strongly Disagree | Strongly agree | Agree | Disagree/ Strongly Disagree | Strongly agree | Agree | Disagree/ Strongly Disagree | N |
| Income | Low | 60%* | 40% | - | 65% | 33% | 2% | 33% | 51% | 16% | 57 |
| | Medium | 71%* | 29% | - | 65% | 35% | - | 36% | 59% | 5% | 69 |
| | High | 82%* | 18% | - | 77% | 23% | - | 55% | 36% | 9% | 22 |
| Age | Under 65 | 71% | 29% | - | 71% | 29% | - | 50% | 29% | 21% | 14 |
| | 65-74 | 75% | 25% | - | 78% | 22% | - | 47% | 50% | 3% | 36 |
| | 75-84 | 68% | 32% | - | 64% | 36% | - | 30% | 59% | 11% | 56 |
| | 85 and over | 61% | 39% | - | 61% | 37% | 1% | 29% | 60% | 11% | 70 |
| Race | White | 68% | 32% | - | 68% | 32% | - | 36% | 55% | 9% | 145 |
| | Nonwhite | 61% | 39% | - | 61% | 36% | 4% | 30% | 52% | 19% | 28 |
| Sex | Female | 60%* | 40% | - | 64% | 35% | 1% | 31% | 56% | 13% | 112 |
| | Male | 80%* | 20% | - | 70% | 30% | - | 42% | 53% | 5% | 64 |

** Statistically significant (at the 5% level) difference within the category.*

## A21. Interactions with meal deliverers by demographics

| | | The people who deliver my meals treat me with respect. | | | The people who deliver my meals are courteous and friendly. | | | The people who deliver my meals take time to talk with me | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Strongly agree | Agree | Disagree/ Strongly Disagree | Strongly agree | Agree | Disagree/ Strongly Disagree | Strongly agree | Agree | Disagree/ Strongly Disagree | N |
| Self-reported health | Excellent or Good | 64% | 36% | - | 67% | 33% | - | 33% | 56% | 11% | 102 |
| | Fair or Poor | 71% | 29% | - | 66% | 33% | 1% | 38% | 53% | 9% | 70 |
| Nutritional risk | Low | 58% | 42% | - | 58% | 42% | - | 26% | 58% | 16% | 19 |
| | Medium | 76% | 24% | - | 66% | 34% | - | 33% | 65% | 3% | 41 |
| | High | 65% | 35% | - | 66% | 34% | - | 38% | 49% | 13% | 94 |
| Number of ADL challenges | 0 | 66% | 34% | - | 66% | 34% | - | 40% | 52% | 8% | 85 |
| | 1 | 77% | 23% | - | 73% | 27% | - | 34% | 52% | 14% | 52 |
| | 2+ | 61% | 39% | - | 56% | 44% | - | 17% | 78% | 6% | 18 |
| Number of IADL challenges | 0-1 | 81% | 19% | - | 67% | 33% | - | 48% | 38% | 14% | 21 |
| | 2-4 | 71% | 29% | - | 65% | 35% | - | 33% | 62% | 5% | 65 |
| | 5-8 | 66% | 34% | - | 70% | 30% | - | 34% | 52% | 14% | 53 |

## A22. Interactions with meal deliverers
### By meal type and deliverer type

| | | Meal type | | Deliverer type | |
|---|---|---|---|---|---|
| | | Hot (N=114) | Frozen (N=62) | Volunteer (N=107) | Paid (N=48) |
| The people who deliver my meals treat me with respect. | Strongly agree | 65% | 71% | 75%* | 54%* |
| | Agree | 35% | 29% | 25%* | 46%* |
| | Disagree or Strongly Disagree | - | - | - | - |
| The people who deliver my meals are courteous and friendly. | Strongly agree | 63% | 73% | 71% | 60% |
| | Agree | 36% | 27% | 29% | 38% |
| | Disagree or Strongly Disagree | 1% | - | - | 2% |
| The people who deliver my meals take time to talk with me | Strongly agree | 32% | 40% | 41% | 25% |
| | Agree | 55% | 55% | 53% | 63% |
| | Disagree or Strongly Disagree | 13% | 5% | 6% | 13% |

** Statistically significant (at the 5% level) difference within the category.*

## A23. Does having home-delivered meals contribute to your safety?
### By demographics

| | | Yes | No | N |
|---|---|---|---|---|
| Income | Below poverty line | 66% | 34% | 53 |
| | Between 100-200% of poverty line | 73% | 27% | 64 |
| | Above 200% of poverty line | 57% | 43% | 21 |
| Age | Under 65 | 64% | 36% | 14 |
| | 65-74 | 62% | 38% | 34 |
| | 75-84 | 62% | 38% | 50 |
| | 85 and over | 77% | 23% | 64 |
| Race | White | 71% | 29% | 133 |
| | Nonwhite | 58% | 42% | 26 |
| Sex | Female | 72% | 28% | 103 |
| | Male | 61% | 39% | 59 |
| Total | | 68% | 32% | 162 |

### A24. Does having home-delivered meals contribute to your safety? - By health

| | | Yes | No | N |
|---|---|---|---|---|
| Self-reported health | Excellent or Good | 73% | 27% | 95 |
| | Fair or Poor | 63% | 37% | 65 |
| Nutritional risk | Low | 59% | 41% | 17 |
| | Medium | 69% | 31% | 36 |
| | High | 71% | 29% | 90 |
| Number of ADL challenges | 0 | 66% | 34% | 76 |
| | 1 | 71% | 29% | 51 |
| | 2+ | 88% | 13% | 16 |
| Number of IADL challenges* | 0-1 | 52% | 48% | 21 |
| | 2-4 | 72% | 28% | 58 |
| | 5-8 | 86% | 14% | 49 |
| Total | | 68% | 32% | 162 |

** Statistically significant (at the 5% level) difference within the category.*

### A25. Does having home-delivered meals contribute to your safety? – By meal type

| | | Yes | No | N |
|---|---|---|---|---|
| Provider* | Pres. Homes | 57% | 43% | 69 |
| | CAP | 67% | 33% | 36 |
| | VOA | 82% | 18% | 57 |
| Meal type | Hot | 69% | 31% | 105 |
| | Frozen | 67% | 33% | 57 |
| Delivery type* | Volunteer | 71% | 29% | 98 |
| | Paid | 52% | 48% | 44 |
| # Meals received per week | 1-3 | 73% | 27% | 30 |
| | 4-6 | 66% | 34% | 97 |
| | 7+ | 68% | 32% | 34 |
| Total | | 68% | 32% | 162 |

** Statistically significant (at the 5% level) difference within the category.*

## A26. Food safety and hot meals

| (Hot meal recipients only:) [Thinking back to the last home-delivered meal that you ate from [program],] did you eat it when it was delivered, or did you save it for later? (N=110) | |
|---|---|
| Ate meal when it was delivered | 73% |
| Saved meal for later | 27% |

| If you do not eat your (hot/chilled/ready to heat) meals when they are delivered, what do you do with them until you are ready to eat them? (N=116) | |
|---|---|
| Refrigerate or freeze them | 76% |
| Leave them out on the counter or table | 11% |
| (Volunteered) Always eat meals right away | 13% |

## A27. Heating meals

| Do you need help heating or reheating your meals? (Would you need help if you needed to reheat a meal?) | | Percent Yes | Total N |
|---|---|---|---|
| Meal type* | Hot | 17% | 112 |
| | Frozen | 2% | 62 |
| Race* | White | 6% | 143 |
| | Nonwhite | 39% | 28 |
| Income* | Below poverty line | 26% | 57 |
| | Between 100-200% of poverty line | 7% | 67 |
| | Above 200% of poverty line | - | 22 |
| | Total | 11% | 174 |

** Statistically significant (at the 5% level) difference within the category.*

**A28. I can depend on the meals to be delivered at the time the program says they will be delivered – By demographics**

| | | Strongly agree | Agree | Disagree or strongly disagree | N |
|---|---|---|---|---|---|
| Income* | Low | 40% | 49% | 11% | 57 |
| | Medium | 41% | 57% | 1% | 68 |
| | High | 50% | 50% | - | 20 |
| Age | Under 65 | 54% | 38% | 8% | 13 |
| | 65-74 | 53% | 44% | 3% | 36 |
| | 75-84 | 41% | 52% | 7% | 54 |
| | 85 and over | 35% | 64% | 1% | 69 |
| Race* | White | 46% | 52% | 1% | 141 |
| | Nonwhite | 21% | 61% | 18% | 28 |
| Sex | Female | 45% | 49% | 5% | 110 |
| | Male | 35% | 63% | 2% | 62 |

** Statistically significant (at the 5% level) difference within the category.*

**A29. I can depend on the meals to be delivered at the time the program says they will be delivered – By meal type**

| | | Strongly agree | Agree | Disagree or strongly disagree | N |
|---|---|---|---|---|---|
| Provider* | Presbyterian Homes | 47% | 44% | 8%* | 72 |
| | CAP | 33% | 67% | -* | 39 |
| | VOA | 41% | 57% | 2%* | 61 |
| Meal type* | Hot | 36%* | 60% | 4% | 112 |
| | Frozen | 53%* | 43% | 3% | 60 |
| Delivery type* | Volunteer | 44% | 55% | 1%* | 106 |
| | Paid | 42% | 44% | 13%* | 45 |
| # Meals received per week | 1-3 | 50% | 50% | - | 32 |
| | 4-6 | 34% | 61% | 5% | 103 |
| | 7+ | 58% | 36% | 6% | 36 |

** Statistically significant (at the 5% level) difference within the category.*

## A30. Overall program quality by demographics

| | | Overall, how would you rate the quality of [this HDM program]? | | | Would you recommend [this HDM program] to others? | | |
|---|---|---|---|---|---|---|---|
| | | Excellent | Good | Fair or Poor | Yes | No | N |
| Income | Low | 45% | 50% | 5% | 96% | 4% | 56 |
| | Medium | 47% | 40% | 13% | 97% | 3% | 69 |
| | High | 36% | 50% | 14% | 95% | 5% | 22 |
| Age | Under 65 | 36% | 57% | 7% | 100% | - | 14 |
| | 65-74 | 51% | 37% | 11% | 92% | 8% | 36 |
| | 75-84 | 45% | 45% | 9% | 98% | 2% | 55 |
| | 85 and over | 41% | 47% | 11% | 99% | 1% | 70 |
| Race | White | 47% | 42% | 12% | 97% | 3% | 144 |
| | Nonwhite | 36% | 61% | 4% | 96% | 4% | 28 |
| Sex | Female | 46% | 46% | 8% | 96% | 4% | 111 |
| | Male | 41% | 44% | 14% | 98% | 2% | 63 |
| Total | | 44% | 45% | 10% | 97% | 3% | 174 |

## A31. Overall program quality by health

| | | Overall, how would you rate the quality of [this HDM program]? | | | Would you recommend [this HDM program] to others? | | |
|---|---|---|---|---|---|---|---|
| | | Excellent | Good | Fair or Poor | Yes | No | N |
| Self-reported health | Excellent or Good | 54%* | 41%* | 5%* | 99% | 1% | 102 |
| | Fair or Poor | 30%* | 53%* | 17%* | 94% | 6% | 70 |
| Nutritional risk | Low | 42% | 47% | 11% | 94% | 6% | 19 |
| | Medium | 46% | 41% | 12% | 100% | - | 41 |
| | High | 46% | 46% | 9% | 97% | 3% | 93 |
| Number of ADL challenges | 0 | 46% | 46% | 7% | 100% | - | 84 |
| | 1 | 43% | 45% | 12% | 94% | 6% | 52 |
| | 2+ | 44% | 33% | 22% | 94% | 6% | 18 |
| Number of IADL challenges | 0-1 | 38% | 52% | 10% | 95% | 5% | 21 |
| | 2-4 | 48% | 42% | 11% | 98% | 2% | 65 |
| | 5-8 | 47% | 42% | 11% | 98% | 2% | 53 |
| Total | | 44% | 45% | 10% | 97% | 3% | 174 |

** Statistically significant (at the 5% level) difference within the category.*

## A32. Overall program quality by provider and meal type

| | | Overall, how would you rate the quality of [this HDM program]? | | | Would you recommend [this HDM program] to others? | | |
|---|---|---|---|---|---|---|---|
| | | Excellent | Good | Fair or Poor | Yes | No | N |
| Provider | Pres. Homes | 43% | 43% | 14% | 96% | 4% | 74 |
| | CAP | 36% | 54% | 10% | 98% | 3% | 40 |
| | VOA | 51% | 43% | 7% | 98% | 2% | 61 |
| Meal type | Hot | 43% | 48% | 9% | 97% | 3% | 113 |
| | Frozen | 46% | 41% | 13% | 97% | 3% | 61 |
| Delivery type | Volunteer | 42% | 45% | 13% | 97% | 3% | 106 |
| | Paid | 46% | 46% | 8% | 96% | 4% | 48 |
| # Meals received per week | 1-3 | 36% | 45% | 18% | 97% | 3% | 33 |
| | 4-6 | 47% | 46% | 8% | 97% | 3% | 103 |
| | 7+ | 46% | 46% | 8% | 100% | - | 37 |
| Total | | 44% | 45% | 10% | 97% | 3% | 174 |

*Appendix IV*

## METROPOLITAN AREA AGENCY ON AGING, INC.
## Policy Development & Procurement Process
### Title III Senior Meal Services

**July 2008 - December 2009:** The Minnesota Board on Aging's (MBA) Senior Nutrition Task Force develops the State's nutrition priorities and directions for 2009-2014. Initial report submitted to MBA in March 2009 and final report provided in December 2009. Key priorities include: creation of a sustainable senior meal program that is consumer-centered, cost- effective, flexible, and innovative.

**January 28, 2010:** MAAA Board of Directors receives background information on Senior Nutrition Task Force, and regional data compiled by MAAA Board's Nutrition Strategies Workgroup. Board discusses future direction(s) of senior nutrition programs in the Metro area.

**April 8 & 22, 2010:** MAAA Planning Committee develops funding policy recommendations and forwards to the MAAA Executive Committee. Twenty-five (25) individuals, consisting of Title III nutrition providers and others, participate in these meetings.

**May 6, 2010:** MAAA Executive Committee reviews funding policy recommendations and forwards on to MAAA Board of Directors for final approval.

**May 20, 2010:** Nutrition program funding policy recommendations approved by MAAA Board.

**June 8, 2010:** Request for Proposal (RFP) for Senior Nutrition Program published.

**June 22, 2010:** Applicant Conference for Senior Nutrition Programs held.

**July 19, 2010:** Proposals due to MAAA.

**August 30, 2010:** Review Committee evaluates and scores proposals, and develops recommendations for MAAA Executive Committee and Board of Directors.

**September 2, 2010:** MAAA Executive Committee reviews recommendations and moves to forward to Board for approval.

**September 16, 2010:** MAAA Board of Directors awards funds and selects organizations for contract negotiations.

**Mid-September through November 2011:** MAAA staff negotiate and finalize contracts for the provision of senior meals in 2011.

**January 1, 2011:** Congregate diners and home delivered meal recipients receive services from selected nutrition contractors.

## Request for Proposal Procurement Schedule

**06-7-2010** RFP available to proposers on Metropolitan Area Agency on Aging website

**06-22-2010** Applicant Conference (not mandatory)

**07-9-2010** Last day to submit written questions about content and process to MAAA

**7-12-2010** All written answers to proposers' questions provided by MAAA

**07-19-2010** Proposals due to MAAA by 3:00 p.m.

**07-26-2010** Questions regarding proposal sent to proposer(s)

**08-2010** Pre-Review Committee work (Technical and Grant Review)

**09-16-2010** Selection of successful proposal by MAAA Board

**10-01-2010** Last day to submit appeal of MAAA decision

**10-4-2010** Contract negotiation with selected proposer completed

**10-22-2010** Final MAAA Action approving negotiated contract

**10-29-2010** Contracts mailed for signature

**11-15-2010** Contracts due back to Metropolitan Area Agency on Aging office with appropriate signature, ready for January 1, 2011 start.

**1/01/2011** Service delivery begins

### A. Notification of Selected Proposers

Both successful and non-successful proposers will be notified in writing following the final MAAA decision. Negotiations can begin only after the appeal process has ended.

### B. Appeal Process and Procedures

Unsuccessful proposers have the right to appeal the MAAA decision. A proposer must provide written notice of its intent to appeal to the MAAA by 10-01-2010. The Notice of Appeal must be directed to Director of the MAAA no later than 10 working days after receipt of notification of the MAAA Board's funding decision. Proposals are based on

the written materials submitted and the appeal may not include additional information about the applicant organization or its project.

**Negotiations Phase**

Negotiations start after the selection and appeal processes have ended. All items in the contract are negotiable. The proposals will not be made public until the contract has been negotiated, signed and fully executed.

# *Appendix V: Client survey methodology and instrument*

The client survey, the source of many of this report's findings, was conducted with a randomly selected and representative[19] sample of home-delivered meal recipients. Clients were selected from all clients who received meals between April and August 2011, and must have received at least one home-delivered meal in July or August. They must also have received at least one home-delivered meal in the 30 days prior to the interview in order to complete the full survey.[20]Interviews were conducted between 10/21/11 and 12/20/11. Clients from all major providers completed interviews, including:

- 88 Presbyterian Homes clients (76 full interviews)
- 52 Scott-Carver-Dakota CAP clients (40 full interviews)
- 17 North Minneapolis Meals-on-Wheels clients (14 full interviews)
- 15 Northeast Dinner Bell clients (11 full interviews)
- 15 TRUST clients (14 full interviews)
- 7 Community Emergency Services clients (7 full interviews)
- 4 CEAP clients (4 full interviews)
- 1 Jewish Family and Children's Services client (1 full interview)

The response rate for this study was 65%[21].

[19]Respondents are very similar demographically to the overall client population, though respondents were slightly more likely to be white, two years older on average, and slightly more mobile than the overall client population. Because of a delay between the sampling timeframe and the survey administration (due largely to the amount of time necessary to gain approval from the programs to interview their clients), the client sample likely contains a disproportionately large share of longer-term clients (as respondents must have received a meal both in July/August and on or after 9/21/11). All interviewed clients had received meals for a minimum of three weeks at the time of the survey, 97% had received meals for at least a month, and 27% had received meals for at least two months.

[20] Clients who received their most recent home-delivered meal more than 30 days prior to the interview were asked to complete an abbreviated interview.

[21] Disconnected numbers and ineligible respondents were excluded from the sample. The response rate was therefore calculated as (209 completed surveys) / (424 total sample – 101 invalid cases [disconnected or unavailable phone numbers, deceased])

# MAAA Title III Home-Delivered Meals Participant Survey

1. When did you last receive a home-delivered meal from [NAME OF HDM PROGRAM]? Was it…

   This past week, ....................(GO TO Q.5.1).................... 1
   During the last 30 days, but not in the last week, or (GO TO Q.5.1) .................... 2
   More than 30 days ago?.................... 3
   Refused .................... (TERMINATE INTERVIEW).................... -7
   Don't know .................... (TERMINATE INTERVIEW).................... -8

2. Can you tell me why you have not received a meal from [NAME OF HDM PROGRAM] in the last 30 days?

   ______________________________________________
   ______________________________________________
   ______________________________________________

   Refused .................... 7
   Don't know .................... 8

3. Overall, how would you rate the quality of the [NAME OF HDM PROGRAM]? Would you say…

   Excellent, .................... 1
   Good, .................... 2
   Fair, or.................... 3
   Poor?.................... 4
   Refused .................... 7
   Don't know .................... 8

4. Do you have any additional comments about [NAME OF HDM PROGRAM] that you would like to share with us?

   ______________________________________________
   ______________________________________________
   ______________________________________________
   ______________________________________________
   ______________________________________________

   Refused ....................-7
   Don't know ....................-8

**Those are all my questions. Thank you for taking time to help out with our study.**

5.1. Are you still receiving meals on wheels from [NAME OF HDM PROGRAM]?

Yes ........................................................................(GO TO Q.5.3)....................... 1

No ................................................................................................................... 2

Refused ....................................................(GO TO Q.5.3)....................... 7

Don't know ...............................................(GO TO Q.5.3)....................... 8

5.2. Could you tell me why you are no longer receiving meals from [NAME OF HDM PROGRAM]?

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

Refused ...........................................................................................-7

Don't know .......................................................................................-8

5.3. (Do/Did) you typically receive…

Hot meals only, delivered every or most weekdays, ............................................ 1

Frozen meals only, delivered once a week, or ..................................................... 2

Frozen meals only, delivered twice a week? ........................................................ 3

R VOLUNTEERS: Another arrangement (Describe below)................................ 4

______________________________________________________________________________

______________________________________________________________________________

Refused ...........................................................................................-7

Don't know .......................................................................................-8

6. How many meals do you get each week?

________# of meals each week

Refused ...........................................................................................-7

Don't know .......................................................................................-8

7. Do you usually eat your meals in the middle of the day or do you use them for other times of the day, like breakfast or evening meals

**READ ONLY IF NEEDED. CIRCLE YES OR NO FOR EACH.**

| | **Yes** | **No** | **REF** | **DK** |
|---|---|---|---|---|
| a. Breakfast | 1 | 2 | 7 | 8 |
| b. Lunch (mid-day) | 1 | 2 | 7 | 8 |
| c. Evening meal | 1 | 2 | 7 | 8 |

8. Do you receive meals intended for the weekends from [NAME OF HDM PROGRAM]?

Yes ........................................................................................................ 1
No ........................................................................(GO TO Q. 10) ...................... 2
Refused ..................................................(GO TO Q. 10) ...................... 7
Don't know ............................................(GO TO Q. 10) ...................... 8

9. How many weekend meals do you receive in a typical week?

One weekend meal.................................................................................... 1
Two weekend meals.................................................................................. 2
Refused ........................................................................................... 7
Don't know ....................................................................................... 8

10. Do you receive meals for holidays from [NAME OF HDM PROGRAM]?

Yes ........................................................................................................ 1
No .......................................................................................................... 2
Refused ........................................................................................... 7
Don't know ....................................................................................... 8

**NOTE:**
**ASK ONE OR BOTH Q11.1 and Q11.2, DEPENDING ON R's ANSWER TO Q5.**
**IF HOT MEALS ONLY, ASK Q11.1**
**IF FROZEN MEALS ONLY, ASK Q11.2**
**IF A COMBINATION OF HOT AND FROZEN, ASK BOTH Q11.1 AND Q11.2.**

11.1. If you do not eat your (hot/chilled/ready to heat) meals when they are delivered, what do you do with them until you are ready to eat them? **(DO NOT READ.CIRCLE ALL THAT R MENTIONS.)**

Refrigerate .............................................................................................. 1
Keep them in the freezer.......................................................................... 2
Leave out on counter or/table .................................................................. 3
Other (Describe: ______________________________________________).......... 4
Refused ........................................................................................... 7
Don't know ....................................................................................... 8

Not applicable (does not receive hot/ready to heat/chilled meals) .......... 9

11.2. What do you do with the meals that are brought to you **frozen** until you are ready to eat them?

**(DO NOT READ.CIRCLE ALLTHAT R MENTIONS.)**

Refrigerate ........................................................................................................ 1

Keep them in the freezer ........................................................................................ 2

Leave out on counter/table ..................................................................................... 3

Other (Describe: ______________________________________________)......... 4

Refused ........................................................................................................ 7

Don't know ..................................................................................................... 8

Not applicable (does not receive frozen meals) ....................................... 9

12. Do you need help heating or reheating your meals? (Would you need help if you needed to reheat a meal?)

Yes ........................................................................................................ 1

No ....................................................................(GO TO Q. 14.1) ....................... 2

Refused ..................................................(GO TO Q. 14.1) ....................... 7

Don't know ..........................................(GO TO Q. 14.1) ....................... 8

13. Who helps you with this? (Who would help you with this?)

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

Refused ........................................................................................................ -7

Don't know ..................................................................................................... -8

14.1. Thinking back to the last home-delivered meal that you ate from [NAME OF HDM PROGRAM], was it delivered to you hot or frozen?

Hot ........................................................................................................ 1

Frozen ................................................................(GO TO Q 14.3) ....................... 2

Other (Describe______________________________________________)..... 3

Refused ....................................................................... ....................... 7

Don't know ............................................................... ....................... 8

14.2. Did you eat it when it was delivered, or did you save it for later? (CIRCLE ONE)

- Ate meal when it was delivered ........................................ 1
- Saved meal for later ........................................ 2
- Other (Describe: ________________________ ...... 3
  - Refused ........................................ 7
  - Don't know ........................................ 8

14.3 How much of that meal did you eat? This includes both the hot and cold food items. Did you eat…

- All of it, ……………………………………(GO TO Q.15.1)……………………..1
- Most of it,........................................ 2
- Some of it, ........................................ 3
- Only a little of it, or ........................................ 4
- None of it? ........................................ 5
  - Refused ……………………………(GO TO Q.15.1)…………………..7
  - Don't know ………………………..(GO TO Q.15.1)…………………..8

14.4 What did you do with (the meal/the rest of the meal)? **(DO NOT READ. CIRCLE ALLTHAT R MENTIONS.)**

- Threw it away ........................................ 1
- Saved it for later / Still saving it …………………………………………………2
- Gave it to another person ........................................ 3
- Fed it to a pet ........................................ 4
- Other (Describe: ________________________)......... 5
  - Refused ........................................-7
  - Don't know ........................................-8

15.1. Are you on any kind of special diet?

- Yes ........................................ 1
- No ........................................(GO TO Q. 16)........................ 2
  - Refused ........................................(GO TO Q. 16)........................ 7
  - Don't know ........................................(GO TO Q. 16)........................ 8

15.2. Did your last meal from [NAME OF HDM PROGRAM] meet your special dietary needs?

Yes ..........(GO TO Q.16).......... 1
No .......... 2
Refused ..........(GO TO Q.16).......... 7
Don't know ..........(GO TO Q.16).......... 8

15.3. What special dietary needs do you have that are not being met?

______________________________________________

______________________________________________

______________________________________________

**16. My next questions are about the food provided by the [NAME OF HDM PROGRAM].**

| **Would you say…** | **Excellent,** | **Good,** | **Fair, or** | **Poor?** | **REF** | **DK** |
|---|---|---|---|---|---|---|
| 16.1.the variety of food is… | 1 | 2 | 3 | 4 | 7 | 8 |
| 16.2. the nutritional value of the meals is… | 1 | 2 | 3 | 4 | 7 | 8 |
| 16.3 the taste of the food is… | 1 | 2 | 3 | 4 | 7 | 8 |
| 16.4. the appearance of the food is… | 1 | 2 | 3 | 4 | 7 | 8 |

**17. Now I have some questions about the meals delivery from the [NAME OF HDM PROGRAM].**
**I would like to know how much you agree or disagree with the following statements.**

| | **Would you say you…** | | | | | |
|---|---|---|---|---|---|---|
| | **Strongly agree,** | **Agree,** | **Disagree, or** | **Strongly disagree?** | **REF** | **DK** |
| 17.1. The people who deliver my meals treat me with respect. | 1 | 2 | 3 | 4 | 7 | 8 |
| 17.2. The people who deliver my meals are courteous and friendly. | 1 | 2 | 3 | 4 | 7 | 8 |
| 17.3. The people who deliver my meals take time to talk with me. | 1 | 2 | 3 | 4 | 7 | 8 |
| 17.4. I can depend on the meals to be delivered at the time the program says they will be delivered. | 1 | 2 | 3 | 4 | 7 | 8 |

**18. The next statements are about the [NAME OF HDM PROGRAM] office staff.**

| | **Would you say you…** | | | | | |
|---|---|---|---|---|---|---|
| | **Strongly agree,** | **Agree,** | **Disagree, or** | **Strongly Disagree?** | **REF** | **DK** |
| 18.1. The office staff are courteous and friendly. | 1 | 2 | 3 | 4 | 7 | 8 |
| 18.2. The office staff treat me with respect. | 1 | 2 | 3 | 4 | 7 | 8 |
| 18.3. It is easy for me to contact the office staff. | 1 | 2 | 3 | 4 | 7 | 8 |
| 18.4. The office staff respond promptly to my questions and concerns. | 1 | 2 | 3 | 4 | 7 | 8 |
| 18.5. It is easy for me to change my delivery schedule. | 1 | 2 | 3 | 4 | 7 | 8 |

19. When you need to contact the office staff, how do you do that? (**DO NOT READ. CIRCLE ALL THAT APPLY.)**

By phone (call the office) ........................................ 1

Computer (email the office)........................................ 2

Send messages through the delivery driver ........................................ 3

R volunteers: Never have contacted office ........................................ 4

Other (Describe________________________________)........ 5

Refused ........................................ -7

Don't know ........................................ -8

**20. The next questions are about the home-delivered meals program services.**

| | **Would you say…** | | | | | |
|---|---|---|---|---|---|---|
| **If I did not have this home-delivered meals service…** | **Definitely yes,** | **Probably yes,** | **Probably not, or** | **Definitely not?** | **REF** | **DK** |
| 20.1. I could manage my daily meals okay on my own. | 1 | 2 | 3 | 4 | 7 | 8 |
| 20.2. I could get help with my daily meals from a family member or a friend. | 1 | 2 | 3 | 4 | 7 | 8 |
| 20.3. It would be hard to stay where I am living now. | 1 | 2 | 3 | 4 | 7 | 8 |
| 20.4. I would eat less well than I do now. | 1 | 2 | 3 | 4 | 7 | 8 |
| 20.5. I would have little daily contact with people | 1 | 2 | 3 | 4 | 7 | 8 |
| 20.6 I would have to go to live somewhere else. | 1 | 2 | 3 | 4 | 7 | 8 |

21.1. Does having home delivered meals contribute to your safety?

Yes ........................................................................................................ 1
No ……………………………………………(GO TO Q.21.3)…………….. 2
Refused …………………………………(GO TO Q.22.1)……………..7
Don't know ……………………………..(GO TO Q.22.1)…………….8

21.2. IF YES: In what ways does it contribute to your safety?

______________________________________________________________________

______________________________________________________________________

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

______________________________________________________________________

______________________________________________________________________

22.1. Have you noticed any changes in your health since you started receiving home-delivered meals?

Yes ........................................................................................ ...................... 1
No ............................................................................(GO TO Q.23) ...................... 2
Refused ....................................................(GO TO Q.23) ...................... 7
Don't know ...............................................(GO TO Q.23) ...................... 8

22.2. What changes have you noticed?

______________________________________________________________________

______________________________________________________________________

23. Overall, How would you rate the quality of [NAME OF HDM PROGRAM]? Would you say it is…

Excellent, ................................................................................................ 1
Good, ...................................................................................................... 2
Fair, or..................................................................................................... 3
Poor?....................................................................................................... 4
Refused ........................................................................................ 7
Don't know ................................................................................... 8

24.1. Would you recommend the [NAME OF HDM PROGRAM] to others?

Yes .........................................................................(GO TO Q.24.2)...................... 1
No ..........................................................................(GO TO Q,24.3)...................... 2
Refused ………………………………..(GO TO Q.25)………............. 7
Don't know ……………………………(GO TO Q.25)……………..…8

24.2. Why would you recommend this program to others?

________________________________________

________________________________________

____________________________________ (GO TO Q.25)

Refused ……………………………..(GO TO Q.25)……….......... -7

Don't know …………………………(GO TO Q.25)……………..… -8

24.3. Why would you not recommend this program to others?

________________________________________

________________________________________

________________________________________

Refused ........................................................................................ -7

Don't know .................................................................................... -8

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

________________________________________

________________________________________

________________________________________

Refused ........................................................................................ -7

Don't know .................................................................................... -8

**Before we end, I have just a few questions about you.**

26. How often do you have contact with friends or family? Is it….

Daily or almost daily,.................................................................. 1

Once or twice a week,................................................................. 2

Once or twice a month, or............................................................ 3

Less than once a month?............................................................. 4

Refused ........................................................................................ 7

Don't know .................................................................................... 8

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

Yes ............................................................................................... 1

No ................................................................................................ 2

Refused ........................................................................................ 7

Don't know .................................................................................... 8

28. During the past year have you been hospitalized overnight or longer?

Yes ... 1
No ... 2
Refused ... 7
Don't know ... 8

29. In general, how would you rate your health? Would you say it is…

Excellent, ... 1
Good, ... 2
Fair, or... 3
Poor? ... 4
Refused ... 7
Don't know ... 8

30. I am going to read a list of things that people often get help with. Please tell me if you currently receive help with any of them. This includes help from family, friends, or neighbors, or other help you might get through an organization or agency. If you do not need help with anything that I name, please tell me that.
**(READ EACH ITEM AND CIRCLE ALL IN APPROPRIATE COLUMNS.)**

| | IF YES, ASK: ➔➔➔➔➔➔➔ | | | | | 31. Do you get this help from… **(CIRCLE ALL THAT APPLY.)** | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Do you get help with…** | **Yes** | **No** | **R volunteers: Not needed** | **REF** | **DK** | **Family, Friends, Neighbors** | **Organization or business** | **REF** | **DK** |
| a. Housekeeping, laundry, grocery shopping, or heavy household chores? This includes yard work, such as lawn mowing or snow shoveling. | 1 | 2 | 3 | 7 | 8 | 1 | 2 | 7 | 8 |
| b. Personal daily cares such as bathing, dressing, or taking medications? | 1 | 2 | 3 | 7 | 8 | 1 | 2 | 7 | 8 |
| c. Weekend or evening meals that are **not** part of your Home-delivered meals program? | 1 | 2 | 3 | 7 | 8 | 1 | 2 | 7 | 8 |
| d. Any other help that you receive? (Describe: ___________________ ___________________________) | 1 | 2 | 3 | 7 | 8 | 1 | 2 | 7 | 8 |
| e. Anything else? (Describe: ___________________ ___________________________) | 1 | 2 | 3 | 7 | 8 | 1 | 2 | 7 | 8 |

**Additional comments by respondent**

32. Is there anything else you would like to share with us about the [NAME OF HDM PROGRAM]?

______________________________________________________________________

______________________________________________________________________

______________________________________________________________________

______________________________________________________________________

______________________________________________________________________

______________________________________________________________________

**Those are all my questions. Thank you very much for taking your time to help out with this study.**