



**Welcome to**  
**“More Than A Meal: Results of a Pilot  
Randomized Controlled Trial”**

Presenter: Kali Thomas, PHD  
Facilitator: Uche Akobundu, PHD, RD

*The webinar will begin at 3:30 p.m. Eastern Daylight Time*



**More Than a Meal: Results from a Pilot  
Randomized Control Trial of a Home-  
Delivered Meals Program**

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## Acknowledgements

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A very special thank you also goes to the eight Meals on Wheels programs for their excellent work in recruiting participants, administering surveys, and collecting data.

- *Aging, Disability & Transit Services of Rockingham County, Reidsville, NC*
- *Athens Community Council on Aging, Athens, GA*
- *Broward Meals on Wheels, Plantation, FL*
- *Community Meals, Evelyn Rubenstein Jewish Community Center, Houston, TX*
- *Interfaith Ministries for Greater Houston, Houston, TX*
- *Meals on Wheels of Ocean County, Lakewood, NJ*
- *Meals on Wheels of Rhode Island, Providence, RI*
- *VNA Meals on Wheels, Dallas, TX*

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## Outline

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- Recent changes in home-delivered meal (HDM) programs
- Designing a randomized control trial (RCT) of a HDM program
- Results from pilot RCT
- “Take Home” points
- Future directions

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## Background

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- Much evidence suggests benefits of home-delivered meals
- Research needed
  - Quantify improvement in quality of life
  - Determine effectiveness of the daily “check in” and social contact

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## Motivation

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- Funding cuts, increased costs, recession and sequestration
  - Increase in waiting lists
  - Switch in meal delivery modality
- Research needed
  - Identify who is affected by waiting lists
  - Identify if outcomes differ by type of meal delivery

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## Study Goals

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- Primary Goals
  - Characterize seniors on waiting lists for HDM
  - Assess effectiveness of HDM for a variety of outcomes
- Secondary Goals
  - Practicality of conducting RCT with this population
  - Refine methods for larger scale evaluation

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## Design

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- Three-arm parallel, fixed, single-blinded randomized controlled trial
- 8 sites
- 620 target participants
- 1:1:1 randomization
- Baseline survey (in person) and 15-week follow-up (via telephone)

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## Study Aims & Primary Outcomes

### Primary Outcomes

- **Evaluate the Effectiveness of HDMs**
  - Improved Mental Health
  - Decreased Isolation
  - Improved Self-Reported Health
- **Evaluate the Effectiveness of Meal Delivery Method**
  - Decreased Isolation
  - Increased Feelings of Safety
  - Increased Ability to Remain in Home

### Secondary Outcomes

- **Evaluate the Effectiveness of HDMs**
  - Reduced Healthcare Visits
  - Reduced Rates of Falls
- **Evaluate the Effectiveness of Meal Delivery Method**
  - Increased Client Satisfaction

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## Phase 1 – Identifying Participants and Conducting Initial Interview

Programs compiled waiting lists



Called to discuss study, scheduled in-person interviews



Consented participants and completed in-person interviews (N=626)



Participants randomly assigned to daily-delivered meals (n=214), frozen, once-weekly delivered meals (n=202), or to remain on the waiting list (n=210)



Meal delivery began and continued 15 weeks

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## Phase 2 – Follow-Up Interview

Participants contacted to schedule follow-up interview



Conducted follow-up interview over telephone  
(n=459; 154 in control group, 174 in daily-delivery group, and  
131 in frozen, once-weekly delivery group)



Data entered and sent to Meals on Wheels America

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## Phase 3 – Analysis

Data verified and cleaned by study personnel



Tested for balance between groups at baseline



Examined rates of attrition and loss to follow-up



Baseline and outcomes analyses

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## Polling Question #1

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- What kinds of client health outcomes data does your state currently collect during the assessment or reassessment of clients? *Select all that apply.*
- Depression/Anxiety
  - Social isolation/Loneliness
  - Hospital utilization
  - Fall risk
  - Self-rated health

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## Results

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- Baseline descriptive characteristics of sample
- Comparison to national population
- Interviewer observations
- Rates of attrition
- Outcome results

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## Demographics

	<i>n</i>	%
<i>Marital Status</i>		
Married	140	23%
Widowed	274	45%
<i>Education</i>		
Less than high school	170	28%
High school diploma or GED	237	40%
Some college	119	20%
College degree or higher	74	12%
<i>Race</i>		
White	359	60%
Black	207	34%
<i>Ethnicity</i>		
Hispanic or Latino	72	12%
<i>Insurance</i>		
Medicaid	176	31%
Medigap/Medicare Supplement	306	54%
Medicare Part D	441	78%
<i>Age</i>		
Mean = 76.3	Range=(60-102)	

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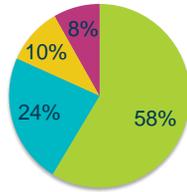
## Help with Personal Care Needs



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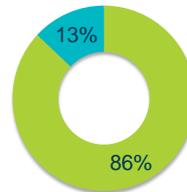
## Social Support

“How often do you have contact with friends or family?”



- Daily or almost daily
- Once or twice a week
- Once or twice a month
- Less than once a month

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



- Yes
- No

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## Nutrition Risk



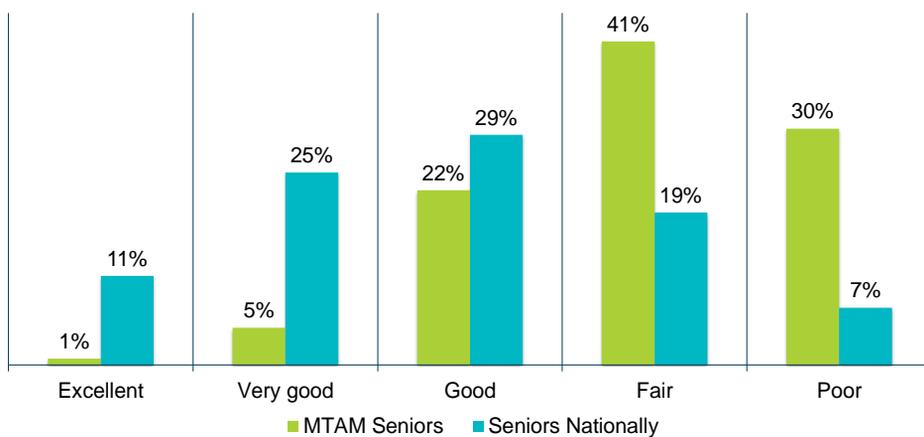
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## Comparing MTAM participants to the population of seniors nationally

- Nationally Representative Survey
  - 2011 National Health and Aging Trends Survey (NHATS)
    - Self-Rated Health
    - Anxiety & Depression
    - Fear of Falling
    - Difficulty Shopping and Cooking
    - Observations Inside and Outside the Home
- Analyses
  - Chi-square to test differences between groups

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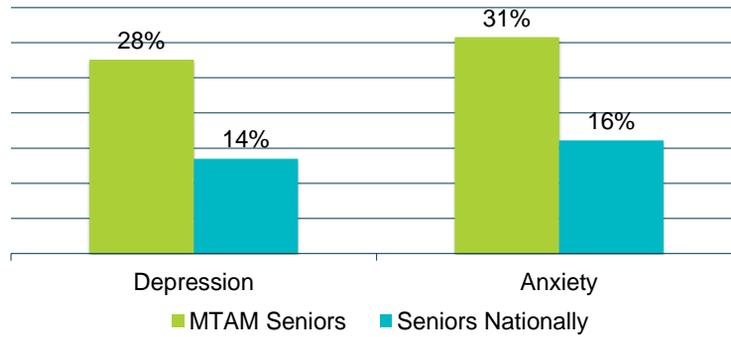
## MTAM participants have worse self-rated health than seniors nationally



Q: "Would you say that in general your health is..."  
Groups significantly different at the  $p < 0.001$  level

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## MTAM participants are more likely to screen positive for depression and anxiety than seniors nationally



Depression measured using PHQ-2 and Anxiety measured using the GAD-2;  
Groups significantly different at the  $p < 0.001$  level

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## MTAM participants are more likely to have fallen and have the fear of falling limit activities than seniors nationally

	MTAM Seniors	Seniors Nationally
Fallen	27%	10%
Worried about falling	56%	27%
Fear limited activities	79%	42%

Q: "In the last month, have you fallen down?"  
Q: "In the last month, did you worry about falling down?"  
Q: "In the last month, did this worry ever limit your activities?"

Groups significantly different at the  $p < 0.001$  level

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## MTAM participants are more likely to need help shopping for groceries and prepare food than seniors nationally

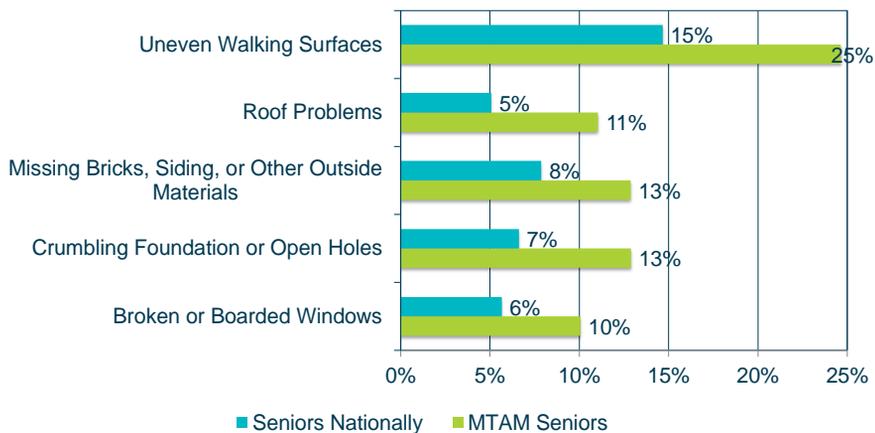
	MTAM Seniors	Seniors Nationally
Shop for groceries	87%	23%
Prepare or heat up food	69%	20%

MTAM: Q: "Are there times when you are not physically able to shop for groceries?"  
 Q: "Are there times when you are not physically able to prepare or heat up your food?"  
 NHATS: Respondents who replied (a) they had assistance for health or functioning reasons or (b) they performed the activity themselves with difficulty were considered to have need for assistance

Groups significantly different at the  $p < 0.001$  level

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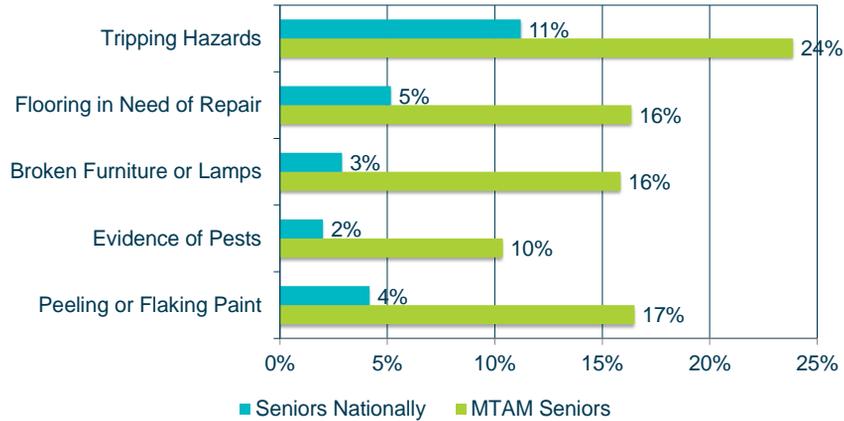
## MTAM participants have more exterior hazards than seniors nationally



Q: "Standing in front of the respondent's home/building, did it have..."  
 Groups significantly different at the  $p < 0.001$  level

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## MTAM participants have more hazards inside the home than seniors nationally



Q: "Inside the respondent's home/apartment/unit, did you observe..."  
Groups significantly different at the  $p < 0.001$  level

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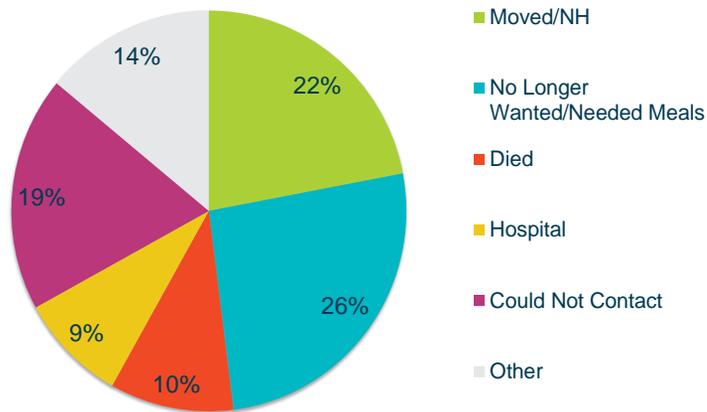
## Retention Rates

		Group			Total	P Value
		Control	Daily	Frozen, Weekly		
Site 1	Initial Interviews	27	31	26	84	
	Follow-Up Interviews	27	31	26	84	
Site 2	Initial Interviews	5	5	5	15	0.238
	Follow-Up Interviews	4	5	4	13	
Site 3	Initial Interviews	25	26	24	75	0.509
	Follow-Up Interviews	21	19	17	57	
Site 5	Initial Interviews	51	n/a	48	99	0.751
	Follow-Up Interviews	26	n/a	26	52	
Site 6	Initial Interviews	30	54	n/a	84	0.116
	Follow-Up Interviews	27	41	n/a	68	
Site 7	Initial Interviews	41	60	55	156	0.053
	Follow-Up Interviews	35	48	36	119	
Site 8	Initial Interviews	1	10	11	22	0.116
	Follow-Up Interviews	0	7	8	15	
Site 10	Initial Interviews	25	25	25	75	0.753
	Follow-Up Interviews	18	20	18	56	

Differences between groups in response rate, by site, were tested with Chi-Square or Fisher's Exact Test

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## Reasons for Attrition



No significant differences between groups in reason for attrition, by site

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## Outcomes Analyses

- Pre-post analyses
  - Examined differences in improvement
    - Mental Health
    - Self-Rated Health
    - Isolation
    - Loneliness
    - Ability to Remain in Home
- Follow-up survey analyses
  - Examined differences in incidence rate
    - Hospitalizations
    - Rates of Falls
  - Examined difference between meal delivery type
    - Feelings of Safety
    - Loneliness
    - Social Contact
    - Satisfaction
- Chi-square to test differences between groups

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## Groups receiving meals had higher rates of improvement in mental health (anxiety)

		Control	Daily	Weekly, Frozen
Did Not Improve	<i>n</i>	131	143	112
	%	93%	88%	90%
Improved	<i>n</i>	10	19	13
	%	7%	12%	10%

Measured using the GAD-2  
No statistically significant difference between groups

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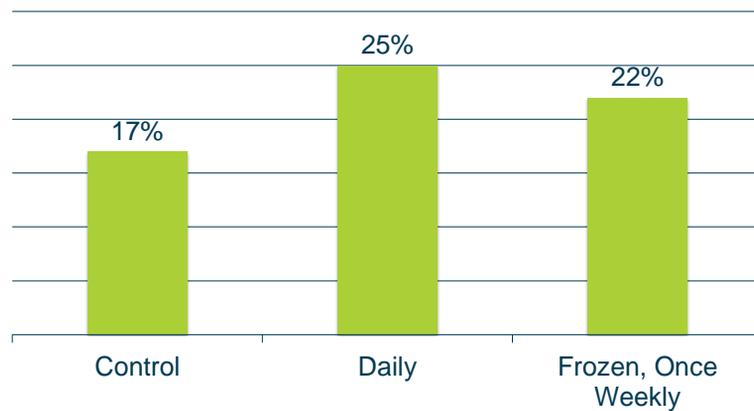
## Groups receiving daily-delivered meals had higher rates of improvement in self-rated health

		Control	Daily	Weekly, Frozen	Total
Did Not Improve	<i>n</i>	117	123	97	337
	%	77%	71%	76%	
Improved	<i>n</i>	35	50	30	115
	%	23%	29%	24%	
Total		152	173	127	452

No statistically significant difference between groups

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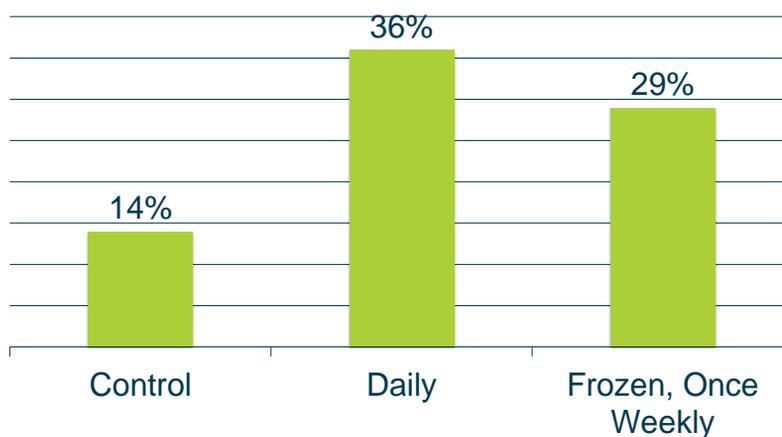
## Group receiving daily-delivered meals had greatest improvement in isolation



Q: "How often do you feel isolated from others? Never, Rarely, Sometimes, Often?"  
No statistically significant difference between groups

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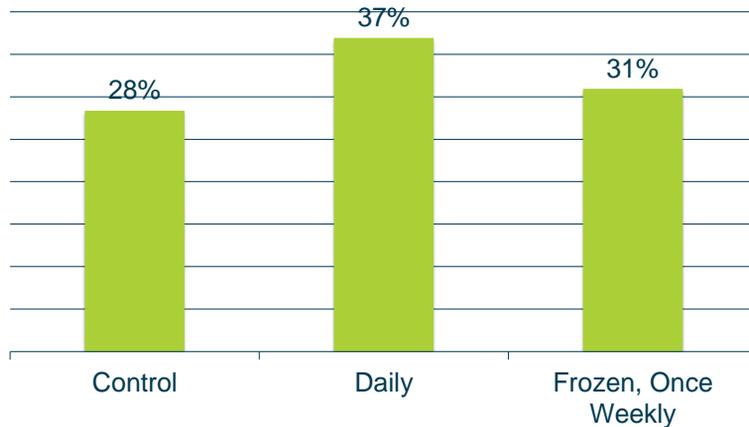
## Among those who live alone, meals have a larger effect on improvement in isolation



Q: "How often do you feel isolated from others? Never, Rarely, Sometimes, Often?"  
These differences were statistically significant ( $\chi^2= 8.92, p=0.01$ )

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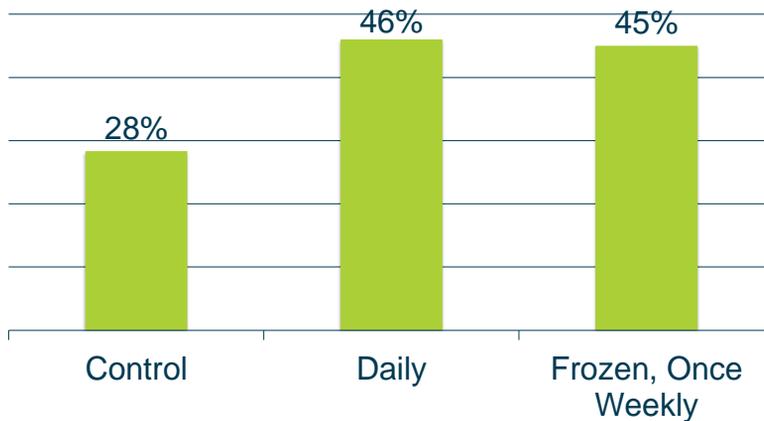
## Group receiving daily-delivered meals had greatest improvements in loneliness



Loneliness measured using the UCLA 3-Item Loneliness Scale  
No statistically significant difference between groups

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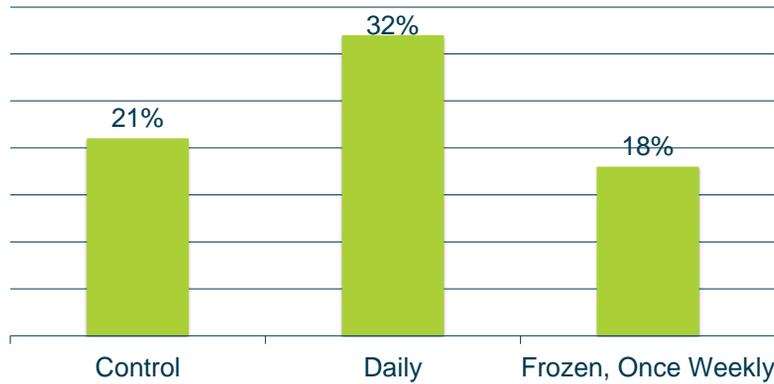
## Among those who live alone, meals have a larger effect on improvement in loneliness



Loneliness measured using the UCLA 3-Item Loneliness Scale  
These differences were marginally statistically significant ( $p=0.09$ )

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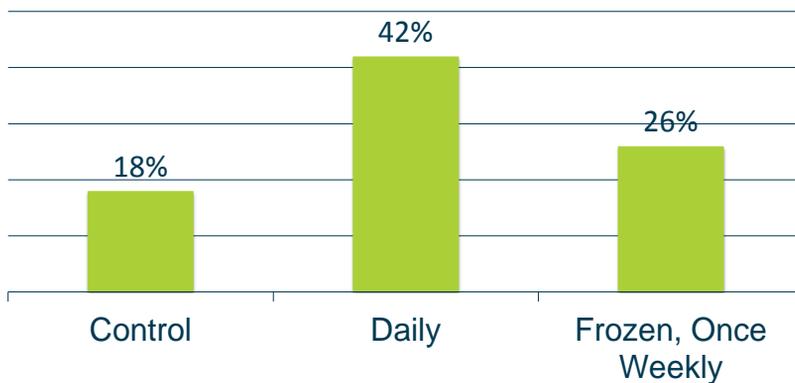
## Group receiving daily-delivered meals had greatest improvement in worry about staying home



Q: "How often do you worry about being able to remain in your home? Never, Rarely, Sometimes, Often?"  
 These differences were statistically significant ( $\chi^2= 9.46, p=0.009$ )

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## Among those who live alone, meals have a larger effect on improvement in worry about staying home



Q: "How often do you worry about being able to remain in your home? Never, Rarely, Sometimes, Often?"  
 These differences were statistically significant ( $\chi^2= 9.04, p=0.01$ )

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## Groups receiving meals had lower rates of hospitalizations

- Hospitalized during study period
  - 14% of individuals who received meals
  - 20% of individuals in the control group
  - Marginally significant difference ( $\chi^2=2.99$ ,  $p=0.08$ )

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## Groups receiving meals had lower incidence of falls among population of fallers

- Among participants who had fallen in the past month at baseline (n=116)

		Control	Daily	Weekly, Frozen	Total
Fallen	<i>n</i>	19	10	14	43
	%	54%	21%	41%	
Did Not Fall	<i>n</i>	16	37	20	73
	%	46%	79%	59%	
Total		35	47	34	116

These differences were statistically significant ( $\chi^2=9.718$ ,  $p<.01$ )

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## Group receiving daily-delivered meals reports Meals on Wheels helps them feel safer

- “Does having home-delivered meals help you to feel safe in your home?”
  - 70% of individuals receiving frozen, weekly-delivered meals
  - 80% of individuals receiving traditional, daily delivered meals
  - Significant difference ( $\chi^2= 4.11, p=0.04$ )

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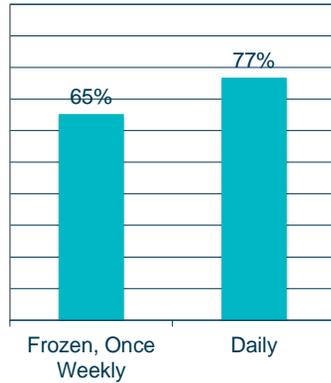
## Reasons given for feeling safer differed between the groups

	Daily	Frozen, Once Weekly
Delivery	49%	24%
Meal	25%	31%
Out of Kitchen	15%	33%
Stay Home	11%	29%
Other	6%	6%

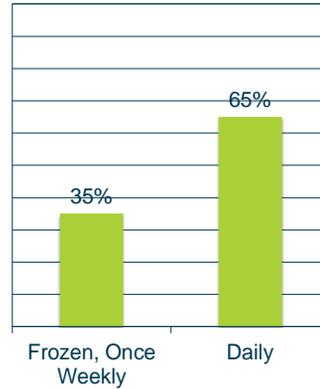
Q: “In what ways does it make you feel safe?”  
 These differences were statistically significant ( $\chi^2= 11.07, p=0.03$ )

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## Group receiving daily-delivered meals reports Meals on Wheels helps them feel less lonely and have more contact



Q: "Do services received from the home-delivered meals program help you feel less lonely?"  
 $\chi^2= 4.61, p<0.05$



Q: "If you did not receive home-delivered meals, would you say "I would have little daily contact with people?"  
 $\chi^2=5.21, p<0.05$

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## Both Groups Satisfied with Program

- 99% of participants in both groups would recommend program to others
- Reasons for recommendation vary

	Daily	Frozen, Once Weekly
Help	41%	27%
Driver	18%	7%
Meal	51%	73%

Q: "Why would you recommend this program to others? ?"  
 These differences were statistically significant ( $\chi^2= 11.9, p=0.003$ )

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## Conclusions

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- Seniors on Meals on Wheels waiting lists need a variety of supports
- Need additional help beyond meals
  - Important to assess these needs
  - Referral to other services
  - Opportunities for collaboration

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## Conclusions

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- Those receiving home-delivered meals had greater improvements in:
  - Anxiety
  - Self-rated health
  - Isolation
  - Loneliness
- And had reduced rates of:
  - Hospitalizations
  - Falls

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## Conclusions

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- Between baseline and follow-up, respondents receiving daily-delivered meals were more likely to exhibit:
  - Improvement in mental health (i.e., anxiety)
  - Improvement in self-rated health
  - Reductions in the rate of falls
  - Improvement in feelings of isolation
  - Decreases in worry about being able to remain in home

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## Conclusions

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- Those receiving daily-delivered meals reported greater benefits from their home-delivered meal experience compared to the group receiving frozen meals
  - More likely to attribute their meals to making them feel safer
  - More likely to note that their meals resulted in more social contact
  - More likely to report decreased loneliness

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## Limitations

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- Sample size (power)
- Rate of attrition
- Once-weekly delivery in this study by Meals on Wheels programs were not comparable to the competitor model that drop-ships frozen meals
- Findings are based on self-report

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## Take Home Points

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- Results suggest Meals on Wheels program provides “*More Than a Meal*”:
  - Home-delivered meals improve the well-being of older adults
  - The benefits of the contact afforded by daily-delivered meals exceed those of once-weekly delivered, frozen meals
- Seniors who live alone are more likely to experience improvements in health and well-being than those who live with others
- Seniors on waiting lists for home-delivered meals are at higher risk than the population of older adults living in the community:
  - They have varied health and social service needs
  - They also have more functional impairment, social isolation and poor dietary intake

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## Research Study Next Steps

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- Examine healthcare utilization and outcomes using Medicare Claims
- Conduct larger scale Pragmatic Randomized Controlled Trial

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## Polling Question #2

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- From the initial survey findings of those individuals requesting meals, what are possible actions you would consider?  
*Select all that apply.*
- Advocate for more funding
  - Refer wait-listed clients to other services
  - Add client health outcome questions to your survey tools
  - Rethink meal delivery services are prioritized

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# Questions?



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 **MORE** THAN A MEAL PILOT RESEARCH STUDY

# Thank you!

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