



# STAR-C-Telemedicine: Extending the Boundaries of Caregiver Support

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# Big Question

Can family caregivers for persons with dementia receive effective, affordable support via telehealth videoconferencing?

# Caregiving and Dementia

- Alzheimer's disease and related dementias (ADRDs) affect 1 in 9 older adults the US
- Memory, judgment, behavior worsens over time
- Caregiving increases risk for physical and psychological ailments and premature death
- Caregiving increases the risk of developing dementia
- Burdened caregivers more likely to place care-recipients into long term care

# Background



# Help is available...yet...

- Underutilized: Inconvenient meeting times, lack of respite care for care-recipient, lengthy travel time, lack of transportation (Karlin, et al. 1999)
- Unmet need: 85% reported education about caregiving as an important unmet need (Black et al., 2013).
- Telephone and telemedicine support groups are becoming more popular and available, but some may prefer one-on-one help (Wahbeh, et al. 2014).

# STAR-C

- A systematic, evidence-based training program which teaches family caregivers to understand and manage behavioral and mood disturbances in family members with Alzheimer's Disease and Related Dementias.
- Significantly reduces caregiver burden, depression, and negative reactions to care-recipient behavioral symptoms of dementia.
- One-on-one training, in the families' homes.

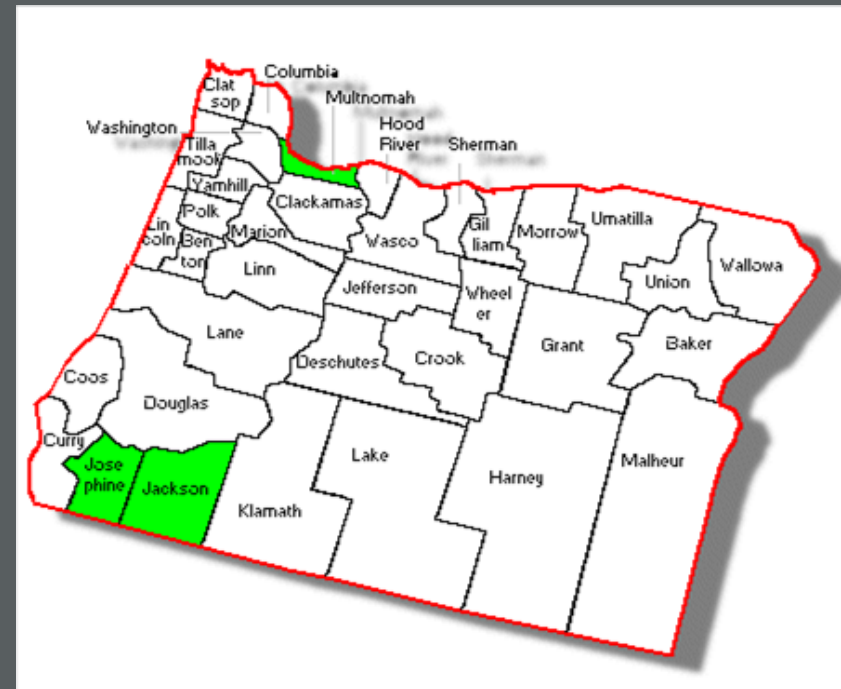
# STAR-C

- Tested in Oregon: McCurry, Logsdon, Mead et al., 2016
- Efficacious, but not sustainable. Concerns were raised “...about the sustainability of delivering eight weekly, in-home sessions, particularly for clients who lived in more remote locations.”
- **STAR-C-Telemedicine has the potential to meet caregivers, literally where they're at, to provide needed support.**

# STAR-C in Oregon

## MULTNOMAH COUNTY

- 4 STAR-C Consultants
- Each Consultant works with 1 caregiver at a time
- 10-11 caregivers/year complete the STAR-C intervention
- Utilize a modified 6-week intervention (4 in-person visits and 2 phone check-ins)

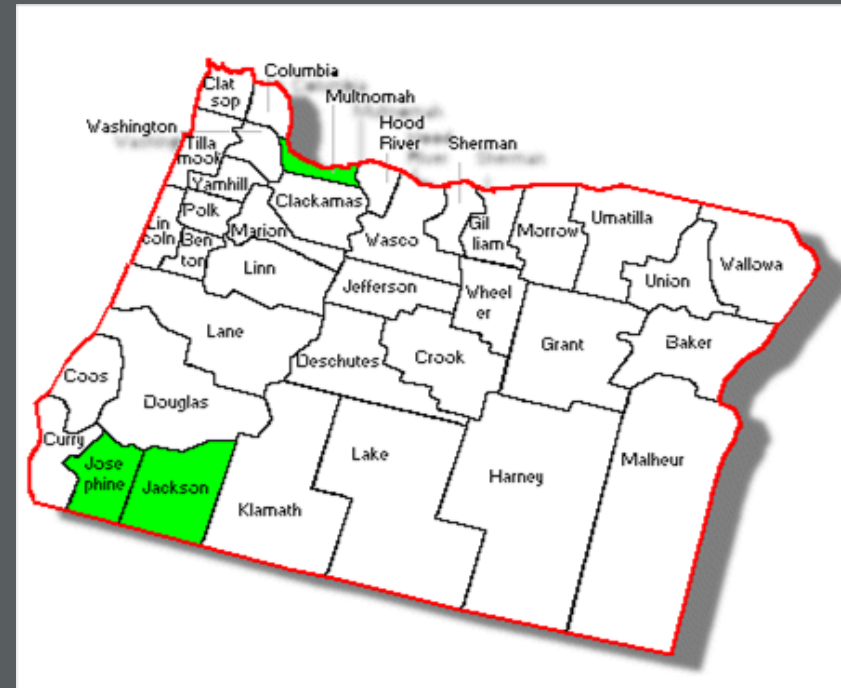




# STAR-C in Oregon

## JACKSON & JOSEPHINE COUNTIES

- 1 STAR-C Consultant
- Consultant works with 1-2 caregivers at a time
- 29 caregivers since 2009
- Modified 6-week intervention (4 in-person visits and 2 phone check-ins)



# STAR-C-TM Aims

- Identify if ADRD family caregivers find telehealth an acceptable and feasible mode of STAR-C training.
  - Cost-effectiveness
- Assess the preliminary efficacy of STAR-C in reducing family caregiver burden and depression, and desire to institutionalize when administered via telehealth.

# Methods

## Participants

- Family caregiver for person with dementia
- Lives with care-recipient
- Over age 18
- Speaks English
- Computer with internet access

# Methods

## Measures

### Caregiver Measures:

1. Revised Memory and Behavior Problems Checklist (RMBPC) (ICC=0.80)
2. Screen for Caregiver Burden (SCB)
3. Desire to Institutionalize (DTI)
4. Center for Epidemiological Studies Depression Scale (CESD)

# Methods

## Measures

Care-recipient Measures:

Montreal Cognitive Assessment (MoCA) (ICC=.93)

# Methods

## Procedures

- All activities via direct-to-home telehealth web-conferencing
- Pre-test
- 8-week STAR-C-TM Protocol with caregivers only
- Monthly telephone calls for 2 months
- Post-tests at 2 months
- Participant feedback and focus groups

# Findings

<b>Table 1. Demographics (n=14)</b>	
<b>Caregivers</b>	
Age (mean, SD, range)	63, 11.8, 30-74
Sex (% women)	50%
Race (% white)	93%
# years caregiving (mean, SD, range)	4.2, 2.9, 0.5-9
<b>Care-recipients</b>	
Age (mean, SD, range)	70, 5.6, 61-82
Sex (% women)	57%
Race (% white)	93%
# years w/ADRD (mean, SD, range)	4.4, 4.3, 1-17
MoCA (mean,SD,range)	13.5, 8.4, 0-26
<b>Both</b>	
Miles from OHSU (mean, range)	46, 3-154
Income (% "Can't make ends meet")	7%

# Findings

**Table 2. STAR-C Telemedicine Pre-Post Measures (n=14)**

Measures	Pre	Post	p-value
RMBPC Frequency	48.9 (10.2)	44.4 (10.1)	0.03*
RMBPC Reaction	32.9 (14.5)	26.8 (13.9)	0.003**
SCB Objective	12.6 (3.4)	11.5 (3.2)	0.08
SCB Subjective	39.6 (8.2)	36.9 (4.7)	0.07
DTI Question 6	1.4 (0.6)	1.4 (1.1)	0.72
CES-D	16.3 (11.8)	15.1 (11.6)	0.43
MCTS Response	14%	14%	1.0

\*  $p < 0.05$ ; \*\*  $p < 0.01$



# Findings

<b>Table 3: Usage Survey (n=12)</b> (100 % completed all sessions; data pending on 2)	
<b>Stem</b>	<b>% Agree</b>
It was easy for me to attend the visits	92%
I could talk with the STAR-C Consultant openly	100%
I felt I could ask the Consultant questions	100%
I feel confident I can use the STAR-C skills to manage behaviors	100%
I felt my privacy and confidentiality were preserved	100%
I felt comfortable discussing sensitive things about my family	100%
It was easy for me to find a safe activity for my care-recipient during the training session	75%
It was easy to connect with the STAR-C Consultant via TM	92%

# Qualitative Findings

“It [STAR-C-TM] takes the stress out of getting help.”

“I feel like I’m learning that he is not intentionally doing these things...I’m trying not to take it so personally.”

“This was a godsend to me. I live in [rural Oregon]; it’s a ways to get up there. This was fantastic. This really was, I can’t say enough good things about it, to tell you the truth.”

# Cost Analysis

# STAR-C-Telemedicine

## Research Questions:

1. How much does it cost to provide STAR-C?
2. How cost-effective is STAR-C-TM?

**Table 1: Demographics (n = 14)**

<b>Caregiver Participants</b>	
Age (mean, SD, range)	62, 11.8, 30-74
Sex (% women)	64%
Race (% white)	93%
Number of years caregiving (mean, SD, range)	3.5, 2.2, 0.5-8
Distance from OHSU, miles (mean, range)	50, 3-154
Income, (% reported, "I can't make ends meet")	7%

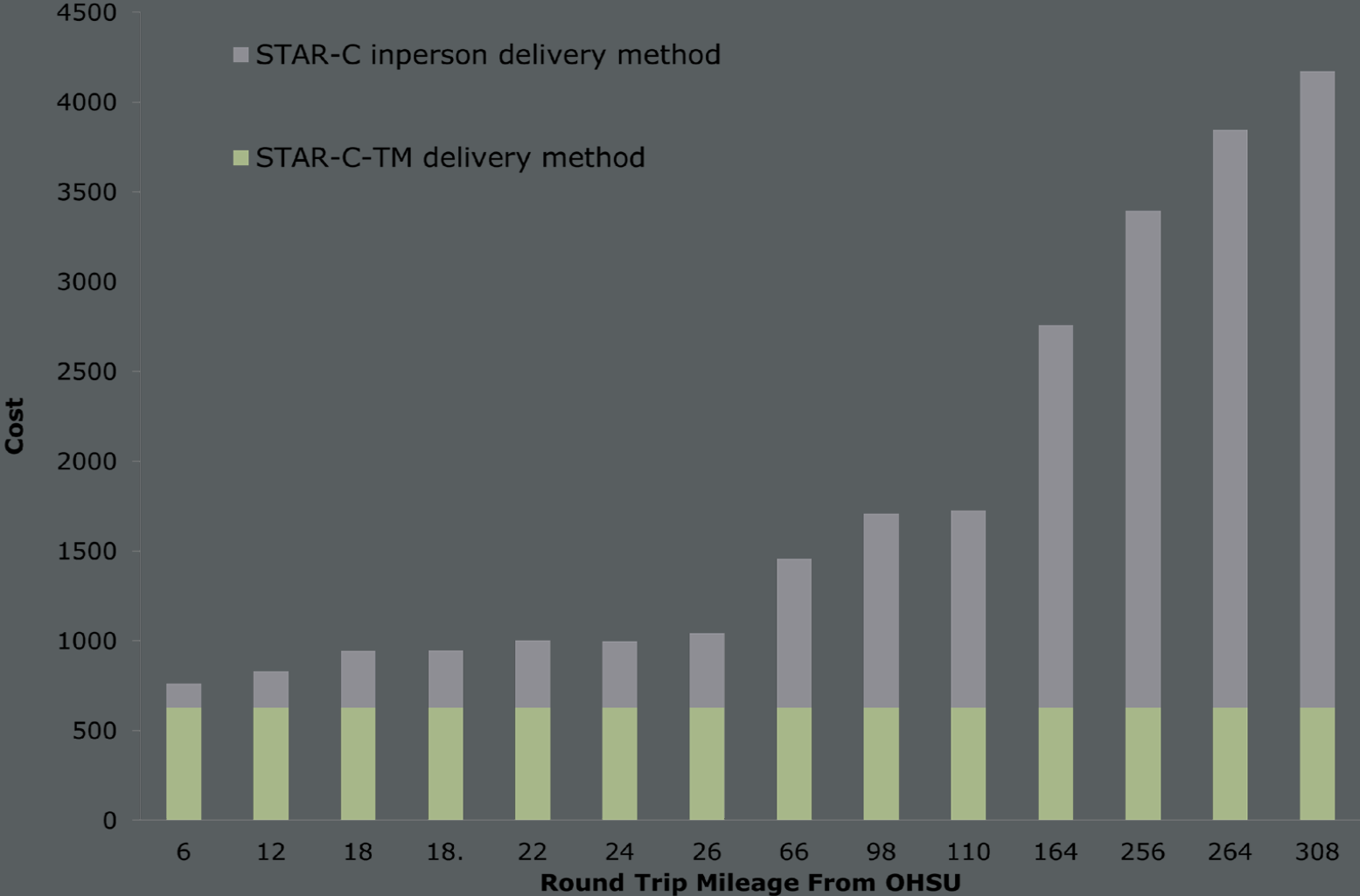
# Cost Per Participant: STAR-C vs STAR-C-TM

- 8-week intervention via telemedicine, 2 follow up phone calls.
- The cost of providing STAR-C-TM was compared to the cost of providing STAR-C in person.

**Table 2: Cost per Participant**

<b>Expenses (USD)</b>	<b>STAR-C (USD)</b>	<b>STAR-C-TM (USD)</b>
Scheduling visits (30 minutes at \$22/hr)	\$11	\$11
Training Hours (8 at \$43.51/hr)	\$348.08	\$348.08
RA phone interviews (3.5 total hours at \$22/hr)	\$77	\$77
Consultant phone interviews (1 total hour at \$43.51/hr)	\$43.51	\$43.51
Recruitment and marketing (4 hours at \$22/hr)	\$88	\$88
Cost of materials (\$6 each when ordered at group rate)	\$6	\$6
Telemedicine set-up (10-60 minutes at \$22/hr)	N/A	\$22
RA mailing materials (30 minutes at \$22/hr)	N/A	\$11
Cost of mailing materials (\$10 each way)	N/A	\$20
Average cost for consultant travel time for eight visits round trip (17.73 hours at \$43.51/hr)	\$771.51	N/A
Average mileage costs round trip (795.44 miles at \$0.54/mile)	\$429.53	N/A
<b>Total</b>	<b>\$1774.63</b>	<b>\$626.59</b>

# Cost to Provide STAR-C Program Based on the Participant's Distance from OHSU



# STAR-C-TM Cost Effectiveness Results

- Compared to STAR-C, STAR-C-TM saves an average of **nearly \$1,150 per participant.**
- Nearest participant (6 miles roundtrip): **\$81.21 in savings**
- Farthest participant (308 miles roundtrip): **\$3,491.74 in savings**
- For distant areas, the savings increase **threefold.**
- **The savings is due to the removal of consultant travel expenses.**

# Limitations

- Pilot
- Raters not blinded
- Caregivers had their own computer and all had internet access. Internet packages cost between \$29.95-\$34.95 per month depending on the participant's zip code
- Additional cost may be a barrier to enrollment, particularly for low-income caregivers who do not currently utilize internet services



# Moving Forward

## Tele-STAR

- Fidelity
- Training
- Collins Medical Trust

## Tele-Savvy

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Questions?





Thank you!



Layton Aging & Alzheimer's Disease Center