



NIA IMPACT
COLLABORATORY
TRANSFORMING DEMENTIA CARE

Changing Talk Online Training (CHATO): A National Trial to Reduce Behavioral Symptoms in LTC Residents with Alzheimer's Disease and Other Dementias



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Housekeeping

- All participants will be muted
- Enter **all questions** in the Zoom **Q&A/chat box** and send to Everyone
- Moderator will review questions from chat box and ask them at the end
- Want to continue the discussion? Associated podcast released about 2 weeks after Grand Rounds
- Visit impactcollaboratory.org
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Acknowledgements

University of Kansas Study Team

- Kristi Williams, RN, PhD, Principal Investigator
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University of Iowa Study Team

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Background & Preliminary Research

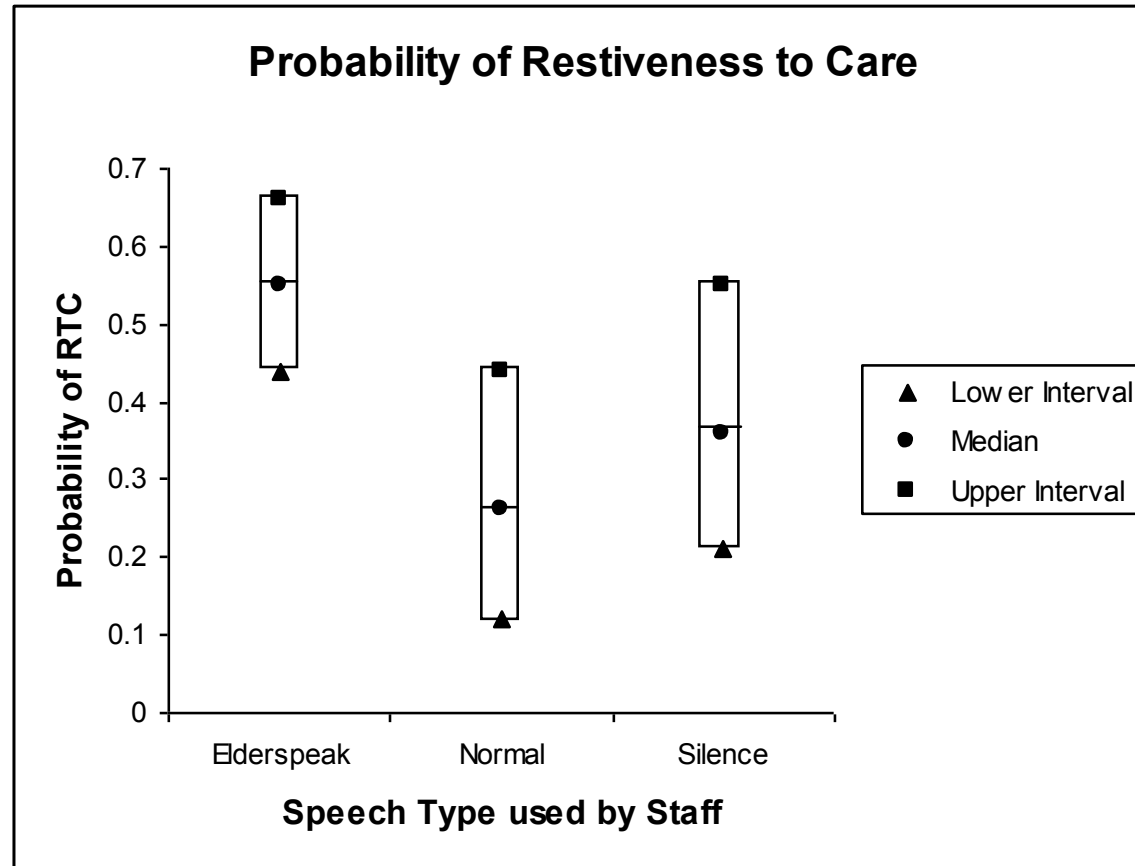
Background

- Up to 90% of NH residents with dementia exhibit behavioral and psychological symptoms of dementia (BPSD)
- Precipitates NH placement; top stressor for NH staff

Preliminary Research

- R03 Elderspeak: Impact on Dementia Care
- R01 Changing Talk (CHAT) to Reduce Resistiveness to Dementia Care
- R34 Clinical Trial Planning Grant
- R61 CHATO Pragmatic Pilot

R03 Elderspeak: Impact on Dementia Care



Probability of RTC significantly different $p = .0028$

Staff Education to Reduce Elderspeak



- CHAnging Talk (CHAT) 3 1-hour Sessions
 - Take resident point of view
 - Videos from actual nursing home
 - Role play & discussion of corrected transcripts
- Significantly reduces elderspeak in recorded talk
- Replicated effects 21 facilities

Changing Talk Intervention

Changing Talk (CHAT) & CHAT Online training (CHATO) is a course designed to increase awareness of the importance of effective communication with older adults and to use evidence-based person-centered communication during interactions with older adults.

Module 1

- Recognize the importance of communication to older adults
- Identify barriers to communication in care of older adults
- Distinguish between effective and ineffective communication strategies

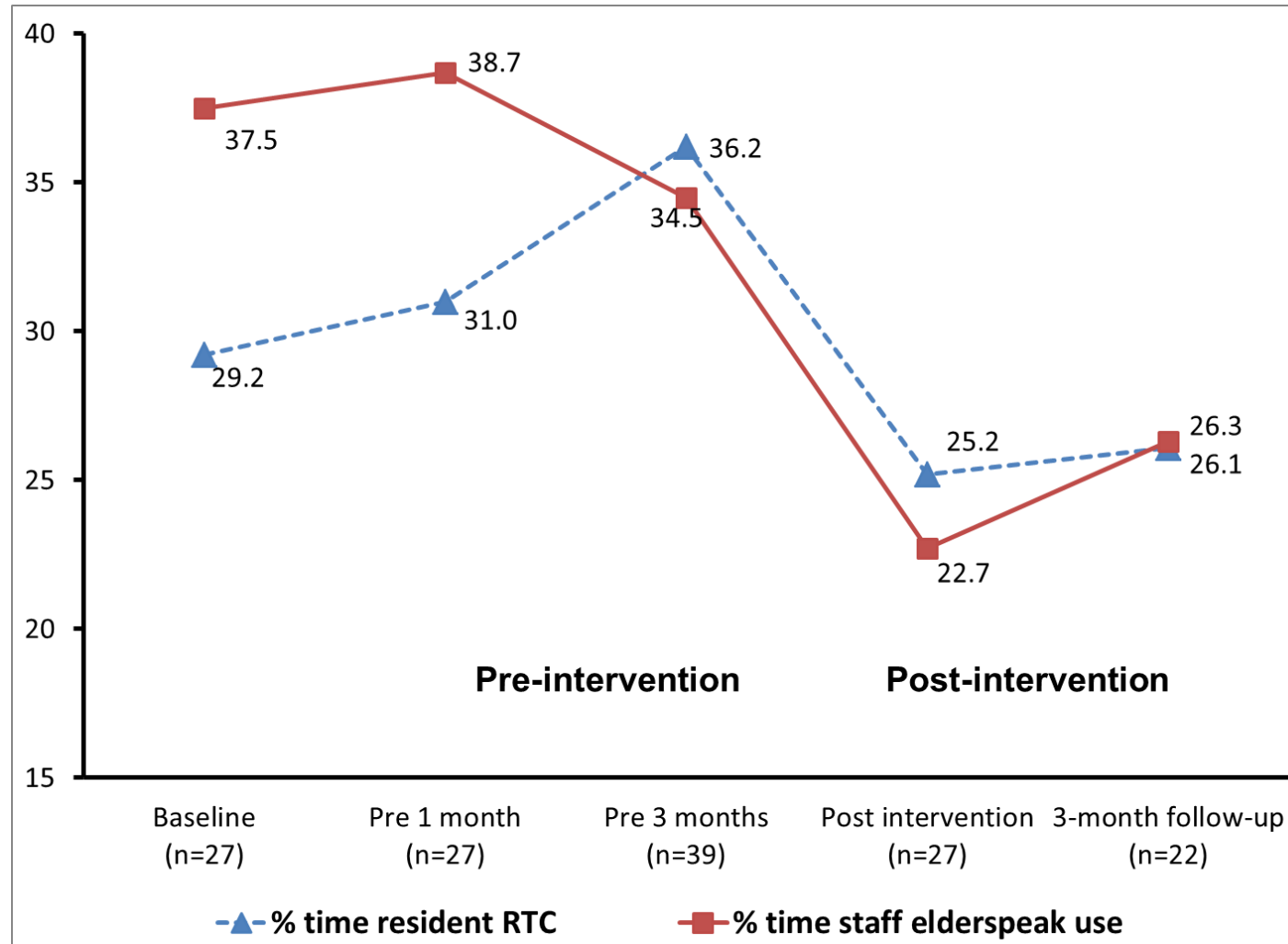
Module 2

- Identify elderspeak and its potential negative messages
- Contrast effective and ineffective communication strategies
- Revise transcripts to reduce elderspeak and ineffective communication

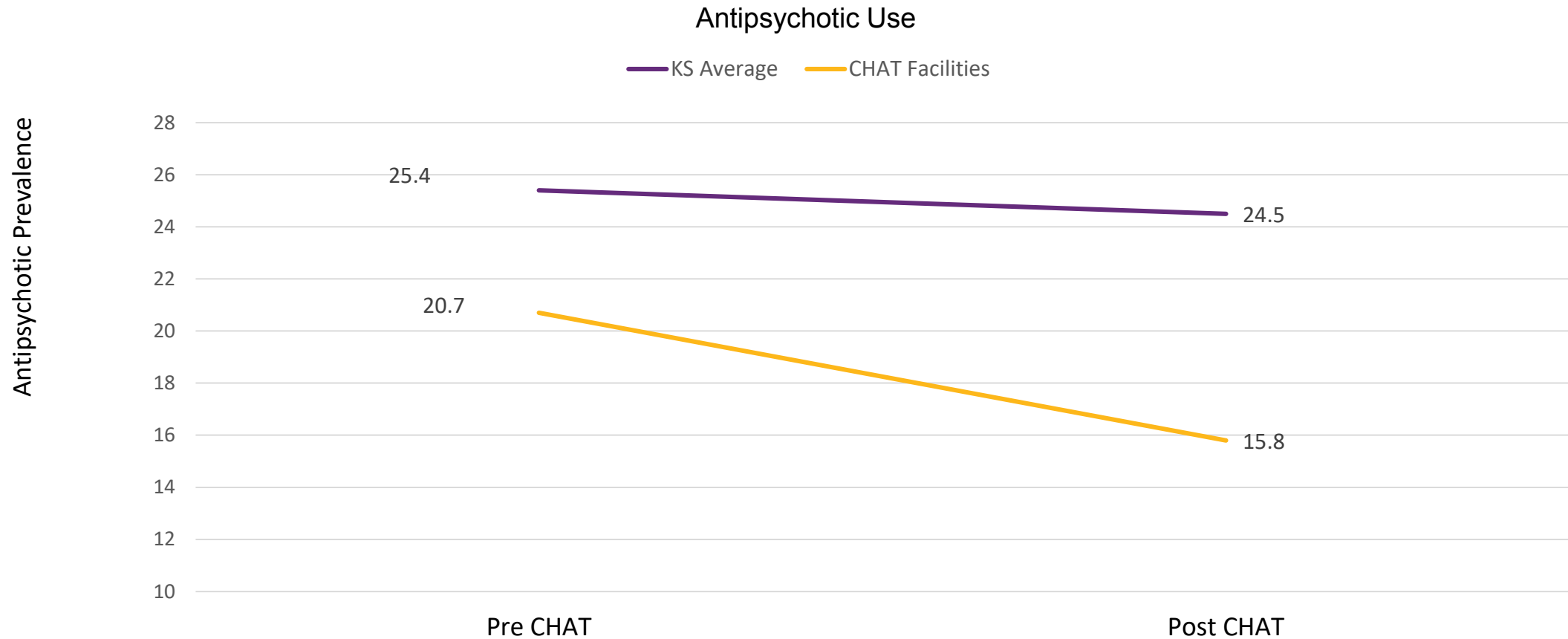
Module 3

- Identify affirming communication
- Critique communication in video recordings of nursing home
 - staff-resident communication
- Rewrite transcripts to reduce elderspeak and ineffective communication

R01 CHAT Findings: Elderspeak & Resistiveness To Care



R01 CHAT Findings: Antipsychotic Use



Decrease 23.7% in CHAT NHs vs 3.5% KS NHs

Specific Aims: Changing Talk Online Training (CHATO): A National Trial

- **Aim 1:** Test effects of CHATO on BPSD and psychotropic medication use in 120 NHs.
- **Aim 2:** Test strategies to engage staff and maximize CHATO effects. We will conduct a mixed-method process evaluation evaluating implementation strategies and supports to assist NHs in approach, motivation, and incentives to improve dissemination.
- **Aim 3:** Evaluate cost and sustainability. Data envelopment analysis will identify CHATO costs in relation to BPSD reductions. NHs will complete a 1-year follow-up survey to report on their adoption and maintenance.

Aim 1a – Resident Outcomes

<p>AIM 1. Test effects of CHATO on BPSD and psychotropic medication use in 120 NHs</p>	<p>BEHAVIORAL and PSYCHOLOGICAL SYMPTOMS OF DEMENTIA (BPSD)</p> <ul style="list-style-type: none">○ Resident MDS data	<p>Between group comparisons of resident MDS data for two quarters before and two quarters after NH participation in the CHATO program:</p> <ul style="list-style-type: none">• E0200 - Presence and Frequency of Behavioral Symptoms in the last 7 days (4 ordinal categories)• E0800 Rejection of Care – Presence and Frequency over past 7 days (4 ordinal categories)• E1100 Change in Behavioral or Other Symptoms (0= same; 1= improved; 2= worse; 3= N/A [due to no prior MDS])
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Aim 1b – Resident Outcomes

<p>AIM 1. Test effects of CHATO on BPSD and psychotropic medication use in 120 NHs</p>	<p>PSYCHOTROPIC MEDICATION USE</p> <ul style="list-style-type: none">○ Resident MDS○ NH NHQM data○ Health Inspection Survey data	<p>Between group comparisons of resident MDS data for two quarters before and two quarters after NH participation in the CHATO program:</p> <ul style="list-style-type: none">• MDS N0410 Medications Received (MDS) (4 ordinal outcomes representing the number of days in the last 7 days for antipsychotic, antianxiety, antidepressant, hypnotic, opioid use)• NHQM: Prescribed Antipsychotic (Long-stay quality measure 419) reported quarterly after a 1 quarter delay. Also, physical restraint use and antianxiety or hypnotic medication rates• Survey F329 Noncompliance due to unnecessary medications and level of deficiency (immediate jeopardy, actual harm, no actual harm & isolated, pattern and occurrence). This data is reported annually. We will compare year before and year after CHATO training
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Analysis Plan

Aim 1:

For each outcome in Aim 1, a GLMM will be developed and implemented with SAS procedure GLIMMIX to test for differences in mean changes between CHATO and controls.

- Separate models will be developed for NHs and residents as the unit of analysis. For resident-level outcomes, random effects accounting for clustering within each NH will be tested. The fixed effects will include intervention (CHATO vs. control) and quarter (Pre 1, Pre 2, Post 1, Post 2) and the intervention-by-quarter interaction. A significant intervention-by-quarter interaction effect will indicate between-group differences.
- Models will be adjusted for NH characteristics (e.g., staffing, proportion of residents with dementia, acuity, NH antipsychotic rates, Medicaid star rating, size, location, culture and care environment, leadership and workplace practices). Models for resident-level outcomes will also be adjusted for resident characteristics (sex, age, race and ethnicity, frailty, cognitive performance). 95% confidence intervals will be calculated around mean contrasts, and parameter estimates from the fitted models will be used to test specific comparisons (e.g., mean changes from Pre 1 & Pre 2 to Post 2 between groups). Significant between-group differences in the expected direction will support the hypothesis (reduction in BPSD and psychotropic rates for two quarters post-CHATO compared to control).

Aim 2 - Implementation

AIM 2. Test strategies to engage staff and maximize CHATO effects

PROCESS EVALUATION

- NH Implementation
- NH Characteristics
- NH Participation Rates
- Knowledge Gain
- Training Evaluation
- NH Leadership Interviews
- Direct Care Staff Focus Groups

- Engagement strategies and implementation supports will be analyzed for relationships to staff participation rates, and behavior and medication use outcomes
- NH data on staff numbers & roles, and module completion rate data
- Knowledge gain, Diffusion of Innovation, and program evaluation will be analyzed for relationships to staff participation rates, and behavior and medication use outcomes
- Interviews and focus groups with administrators and staff from 20 NHs

Aim 2 - Implementation

Implementation Supports

- Website:
<http://www.kumc.edu/chato>
- Communication Plan
- Implementation Toolkit
- Training Manual

Implementation Measures

- NH Participation
- NH Environment/Organizational Practice - Artifacts of Culture Change Assessment
- Implementation Strategies Survey
- Lead & Admin Evaluation Surveys
- Leadership Interviews by External Evaluator

Analysis Plan

Aim 2:

We will collect data on strategies used and other potential factors influencing BPSD and psychotropic medication use from the 60 CHATO group NHs.

- We will use descriptive statistics and correlations to determine relationships between approaches to engage staff in training and participation rates. The goal is to categorize strategies as they related to staff participation rates. Associations among NH environment, practices and other characteristics will be examined in relation to participation rates and implementation strategies, using correlations and chi-square tests.
- GLMM models or/and growth mixture models will be fit to BPSD and medication use outcomes to identify treatment, NH, and resident variables associated with changes in the outcomes. Random effects accounting for clustering within each NH will be tested. The fixed effect will be quarter (Pre 1, Pre 2, Post 1, Post 2) and significant interactions between quarter and covariates, such as participation rates, implementation strategies, knowledge gain, diffusion of innovation, and program evaluation, and NH and resident characteristics. Models will be adjusted for significant covariates. Resident sex will be tested as a moderator by including interactions between sex and other covariates.
- Qualitative content analysis of transcripts of the audio recorded interviews and focus groups will be conducted by LeadingAge to distinguish processes used by those NH with highest and lowest participation rates for staff and for the highest and lowest changes in BPSD and psychotropic medication use outcomes.

Aim 3 – Cost and Sustainability

<p>AIM 3: Evaluate cost and sustainability</p>	<ul style="list-style-type: none">• COST• SUSTAINABILITY<ul style="list-style-type: none">○ Adoption & Maintenance	<ul style="list-style-type: none">• Process-based costing and data envelopment analysis comparing CHATO and Control groups and support used• One-year NH follow-up survey
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Analysis Plan

Aim 3:

We will compute a simple cost-effectiveness ratio (CEA); the added cost associated with CHATO divided by the reduction in BPSD.

- Our CEA focuses on cost per unit change in BPSD, ΔBPSD , measured by post-intervention BPSD difference between CHATO and control. The difference in cost between groups will be labeled ΔC . We will calculate a 95% confidence interval for the ratio $\Delta\text{C} / \Delta\text{BPSD}$ – the change in cost per unit change in BPSD. ΔBPSD will be modeled using linear mixed modeling and because ΔC is calculated at the facility level, we can use a simple two-sample comparison. We will generate a 95% confidence interval for the ratio and will use a bootstrap procedure to alleviate the potential challenge of non-normality of the distribution of the parameter estimate. We will also estimate cost-effectiveness differences for the varied NH approaches.

Major Accomplishments

- Completed pilot testing of new LMS system with Adult Day Services
- Study team additions and replacements
- Recruitment strategies underway, currently working with cohort 3
- ResDAC MDS and Part D data request submitted
- Protocol Paper published
- 3 Manuscripts in review/ GSA abstract for podium presentation Nov.
- Administrative Supplement (CHAT-PPE)

Table 17. Changing Talk Scale (CHATS) and Confidence in Dementia (CODE) Scores Pre-and Post-CHATO for Adult Day Services Staff

Measure	N	Pre-CHATO	Post-CHATO	Change (Post – Pre)	<i>p</i>
		Mean ± SD	Mean ± SD	Mean ± SD	
Knowledge of person-centered communication (CHATS)	19	62.4 ± 13.4	77.3 ± 11.7	15.0 ± 8.9	<.001
Confidence in dementia care (CODE)	18	35.4 ± 5.3	37.3 ± 4.9	1.9 ± 3.5	.037

Table 18. Communication Ratings Pre- and Post-CHATO Comparing Staff in Adult Day Services (N=19) and in Nursing Homes (N=118)

Communication Item	ADS			NHs			<i>p</i> ^b
	Pre-CHATO	Post-CHATO	<i>p</i> ^a	Pre-CHATO	Post-CHATO	<i>p</i> ^a	
Recognizes effective communication	2.1 ± 1.1	2.0 ± 1.1	.781	2.6 ± 1.2	2.1 ± 1.1	<.001	.124
Recognizes appropriate communication	2.3 ± 1.1	2.0 ± 1.0	.092	3.0 ± 1.2	2.2 ± 1.1	<.001	.152
Recognizes elderspeak communication	0.6 ± 0.2	0.7 ± 0.2	.025	0.6 ± 0.2	0.7 ± 0.3	<.001	.878
Recognizes person-centered communication	0.3 ± 0.3	0.2 ± 0.3	.344	0.5 ± 0.4	0.3 ± 0.4	<.001	.350



R01 Recruitment: Stratification

- Four stratification variables
 - Region, Rural vs Nonrural, Size, Star Rating
 - Need 4 NHs per cell = 128 total
- Cohort 1 – 1 IG, 2 CG (blue) - Completed March 2022
- Cohort 2 – 6 IG, 4 CG (green) - Completed June 2022
- Cohort 3 – 9 IG, 12 CG (Orange) - Active

		Rural		Metro	
		4-5 stars	1-3 star	4-5 stars	1-3 star
Northeast	<100 beds				
	100+ beds				335238
South	<100 beds	37E109	045228	215132	
	100+ beds	445377	445351 495068 445327	105801	185146 445306 445343 185006
Midwest	<100 beds	175474 355081 175403	145918 145857 355103 265773		155378
	100+ beds		146000	235279 065272	
West	<100 beds			135059 065311	555244
	100+ beds		535045	055169 555363	065052

R01 Recruitment: Multifaceted Approach

- Organizational Networking
- Email & Newsletters
- Social Media Advertising
- CHATO NH Hub Identification

City	County	State	Status	Trend	Stratification	% White	% Black	% Hispanic
Berkeley	Alameda	CA	Clear		W_4- 5_<100_Metro	44.12	0.00	0.00
San Leandro	Alameda	CA	Recent Cases		W_4- 5_<100_Metro	36.84	0.00	0.00
Oakland	Alameda	CA	Clear		W_4- 5_<100_Metro	61.11	20.37	0.00
Livermore	Alameda	CA	Active Cases		W_4- 5_<100_Metro	52.38	0.00	0.00
Castro Valley	Alameda	CA	Clear		W_4- 5_<100_Metro	0.00	0.00	0.00
Oakland	Alameda	CA	Clear		W_1- 3_<100_Metro	44.00	42.00	0.00
Oakland	Alameda	CA	Recent Cases		W_4- 5_<100_Metro	64.44	0.00	0.00

Table 1. Nursing Home Participation – Immediate Intervention Group

	Total NHs=7	Cohort 1 NHs= 1	Cohort 2 NHs= 6	Cohort 3	Cohort 4
Eligible participants - N	598	57	541		
Enrolled participants - N	490	57	433		
Pre-Test participants - N	464	57	407		
Post-Test participants - N	409	55	354		
Participation rate - %	81.9	100.0	80.0		
Completion rate - %	83.5	96.5	81.8		
Passing rate – by last posttest attempt - %	81.4	93.0	80.0		



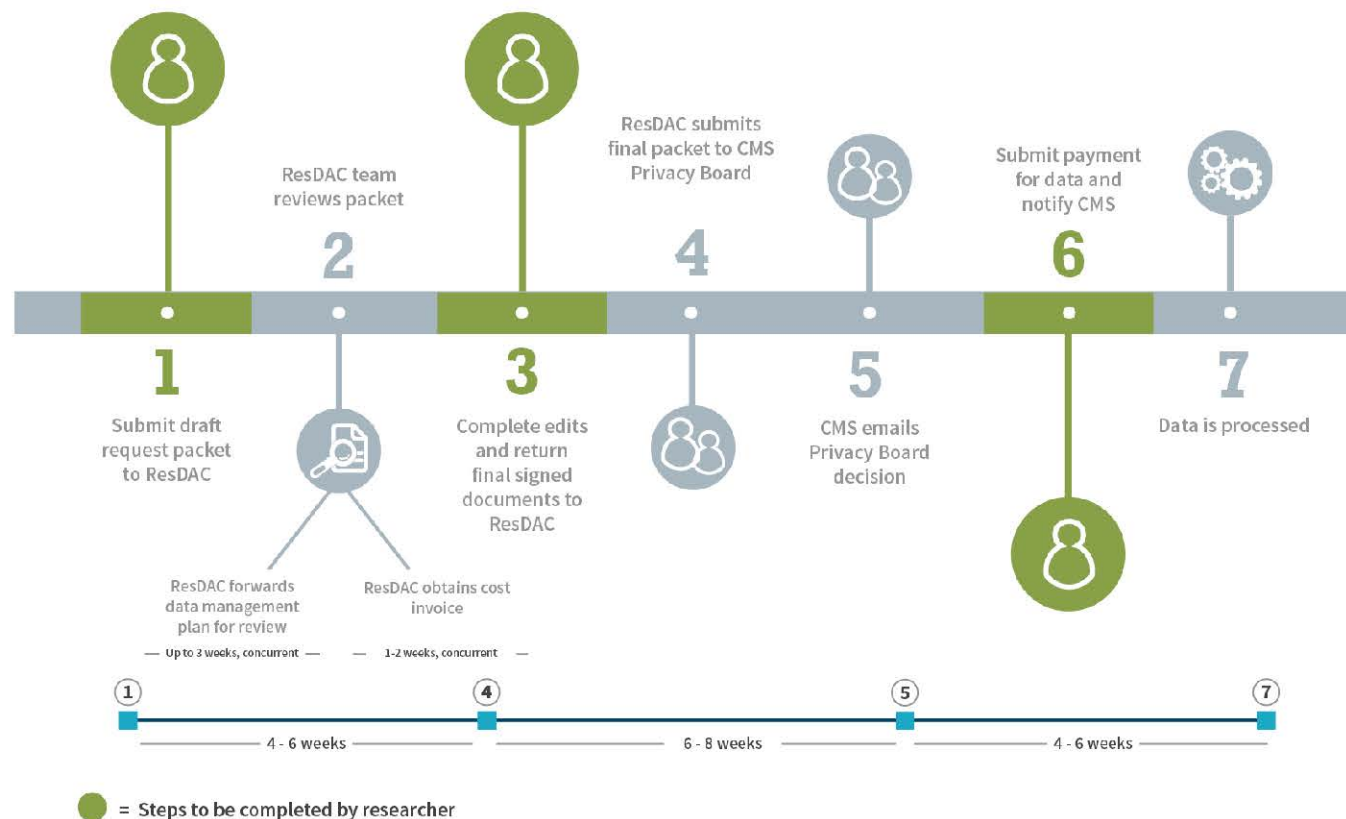
Table 8. Changing Talk Scale (CHATS) Pre and Post CHATO Knowledge Gain– Immediate Intervention Group

	Pre and Posttest Scores – Mean Percent (SD)					
	Total	C1	C2	C3	C4	C5
	NH= 7	NH=1	NH=6	NH=	NH=	NH=
First post minus corresponding pre-tests						
Pre-Test Sample Size - N	407	55	352			
Pre-Test Score – Mean % (SD)	53.8 (17.0)	59.6 (15.6)	52.9 (17.0)			
First Post-Test Sample Size - N	407	55	352			
Post-Test Score – Mean % (SD)	74.2 (20.4)	73.9 (18.4)	74.2 (20.7)			
Mean change in Score (First post minus pre) (SD)	20.3 (20.9)	14.3 (17.4)	21.3 (21.2)			
Paired samples t-test	$p = <.001$	$p = <.001$	$p = <.001$			
Last post minus corresponding pre-tests						
Pre-Test Sample Size - N	401	53	348			
Pre-Test Score – Mean % (SD)	53.8 (16.9)	59.7 (15.9)	52.9 (16.9)			
Last Post-Test Sample Size - N	401	53	348			
Post-Test Score – Mean % (SD)	90.3 (9.7)	89.4 (8.8)	90.5 (9.9)			
Mean change in Score (Last post minus pre) (SD)	36.6 (19.5)	29.8 (16.4)	37.6 (19.8)			
Paired samples t-test	$p = <.001$	$p = <.001$	$p = <.001$			



Aim 1 – Resident Outcomes

- Behavioral Symptoms and Psychoactive Medication Use
- MDS and Part D
 - Planned Pilot study R61 data (2019-2020)
 - Packet submitted to ResDAC August 2022
 - Data storage and analysis on Iowa HERCe server
- NH Quality Indicators



Aim 2 – Implementation

CHATO implementation take place over 3 months –

- **Month 1** planning (we provide all materials and go over Implementation Checklist).
- **Month 2** Staff to take training, ideally one module per week. Leadership provided with weekly enrollment and completion information).
- **Month 3** Catch up and follow up (includes meeting at the end of the three-month period to discuss implementation and methods of sustainability).

Aim 2 – Implementation Strategies

- Leadership takes CHATO first (100%)
- Staff were reminded weekly (100%)
- Sustainability - materials were added to orientation (100%)
- All staff are required to take CHATO (83.3%)
- Onsite discussions were held (83.3%)
- Implementation team members included: Administrator (100%), DON (83.3%), RNs (66.7), Social Worker (50.0), and Dietary staff (50.0)
- Informed residents or families staff was taking CHATO (66.7%)
- Rewards were used (66.7%)
- Identify CHATO champions to assist with implementation (50%)

Aim 2 – Implementation: Leadership Perspectives

- **Implementation Leads**

- Communication between staff/residents has improved (60.0%)
- Communication culture changed for the better across the nursing home (55.8%)

- **Administrators**

- Communication between staff/residents has improved (68.6%)
- Communication culture changed for the better across the nursing home (67.3%)

- **Barriers:** three hours is too long, accessing the training website and staying connected were issues at times

- **Facilitators:** Embedding the link into existing learning system (i.e., Relias), CEU credits, verbally communicating with staff about training

Next Steps

- Target enrollment per stratification grid
- MDS Data
 - ResDAC approval
 - NIH-direct payment
 - Pilot data cleaning and analyses
 - Extract NH Quality Indicators
- Leading Age Focus groups and phone interviews (administrators and staff)
- Sustainability Survey



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Questions?

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