Supporting Communication in the Day Health Center for Participants with Hearing Loss and Dementia

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Outline

• Burden
• Project logistics
• Research findings
Burden of Hearing Loss & Dementia in the PACE Population

Matthew McNabney, M.D.
Medical Director
Hopkins ElderPlus

Context

• Stereotypes
• Jokes
• Reality
Age-Related Hearing Loss

- It is a reality
- However, it is variable
- How much of an impact?

https://www.hearinglikeme.com/hearing-loss-simulator/

Healthy Aging

- Cognitive Vitality & Avoiding Dementia
- Avoiding Injury
- Maintaining Physical Mobility & Activity
- Keeping Socially Engaged & Active
- Health Resource Utilization

Hearing Loss

Borrowed from Frank R. Lin
Hearing Loss & Hearing Aid Use
Prevalence in the U.S., 1999-2006

Lin et al., Arch Int Med, 2012

Hearing Loss Treatment

Total Cost = $3050-5050
Prevalence of Hearing Loss at Hopkins ElderPlus

- Hearing Loss Diagnosis (n = 29)

- Hearing Aids (n = 3)
  - Only 2 with diagnosis hearing loss in EMR (66%)

- Pocket talkers (n = 18)
  - Only 8 with diagnosis hearing loss in EMR (44%)

Comparisons of Screening Results & Database Query

- Research team confirmed that hearing impairment much more common than documented

- Significant on many levels

- What is being missed?
  - Quality of life
  - Cognitive performance
Challenge of Addressing Hearing Loss in the PACE-eligible Population

• Participant Level
  – Stigma
  – Acceptance/acclimation to deficit
  – Inconvenience

• HEP staff level
  – Diagnostic awareness
  – Will to intervene (all disciplines)

The Challenge: Hearing Aids & Dementia

• My mother put her hearing aids in her juice and now the staff won’t let her wear them.

• My mother was hiding her hearing aids in the laundry – we’ve lost them now.

• My problem isn’t with my hearing – it’s my memory that’s failing.
Added Challenge of Hearing Loss with Dementia

• Deficits mimic the other condition

• Deficits of one exacerbate those of the other

Results from JH Memory Clinic & Other Venues

• Prior studies by JHU researchers

• Demonstrate the benefits of evaluation and intervention
Results

Cornell Scale for Depression in Dementia (CSDD)

NPI Score

Neuropsychiatric Profile Inventory (NPI-Q)
Caregiver Feedback

“My mother listens to music more often and when she’s watching television she seems to understand what she is watching and laughs or smiles at appropriate times. She also speaks louder, asks more questions, and seems to follow the conversation better. She is reading more often.”

Interest in Treating More Hearing Loss (within Hopkins ElderPlus)

• Buy-in was cultivated

• Interest in team perspectives

• Focus groups
Project Logistics

Jack Rund, P.T., M.B.A.
Director of Operations
Hopkins ElderPlus

Hopkins ElderPlus by the Numbers

- Current Census = 140
- Day Health Center (DHC) capacity = 90
- Average scheduled daily DHC attendance = 72
- Average actual daily DHC attendance = 58
- Environment
  - Day Health Center
    - L-shaped activity/dining area
    - 9 foot ceilings
    - Activity and Dining area = 3,600 sq. ft.
Typical DHC Activities

• Live music
• Karaoke/Sing-a-long
• Exercise – Jazzercise, Step to the Beat, etc.
• Games – bowling, bean bag toss, chair volley ball, horse shoes
• Trivia, Pictionary, Family Feud
• Morning announcements
• Educational Sessions
• Bingo
• Arts and Crafts, Therapeutic coloring

Group Approach to Addressing Hearing Loss

• Room acoustics
• Staff training
• Pocket talkers
Getting Staff Engaged in the Research

- Announcements
  - Endorsing the interventions and encouraging staff involvement
  - Multiple announcements
    - Focus groups, pre- and post-intervention questionnaires, training

Research Team Involvement

- Observations
- Attendance at morning team meetings
- Focus groups
Acoustic Changes to Improve Communication

- Where is the noise coming from?
  - Mechanical room in the center of the DHC
  - Refrigerator
  - Area for participant vitals
  - Daily routine of participants – habits, routines, circle of friends
  - Daily routine of employees – habits and routines
  - One speaker with the volume set for everyone to hear
New PA System

• Benefits
  – Speakers spread throughout the room
  – Multiple wireless mics
    • Staff Feedback
  – Zone control

PA System Installation

• Coordination with vendor

• Need for more speakers

• Overall timeline
Additional Changes

• Foam panels
• Mobile partition
  – 4’ high by 8’ wide portable fabric panels

• Challenges
  – Fire code compliance
  – Install time
  – Working around participant attendance
  – Weight of the large foam panels
Brainstorming Other Options

• Modification of Activity
  – Change the location to fit the need
    • Reading Group
    • Bible Study
    • Special groups

• Additional Training
  – Observe staff use of equipment and re-educate as needed
  – Training beyond the focus groups
  – Project champions, ownership
Research Findings:
Staff Training & Personal Amplifiers

Sara K. Mamo, Au.D., Ph.D., CCC-A
Assistant Professor, UMass Amherst

Qualitative/Formative Research

- Direct Observation
  - During all activities
  - Across a full day
  - Sampled over a two-week period

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Successful Example</th>
<th>Unsuccessful Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Get Face-to-Face</td>
<td>[Participant] is [repeatedly] calling out...Two staff members talk to her right next to her ear...</td>
<td>Participants and staff were trying to talk to each other across the room. A lot of “huhs” were heard.</td>
</tr>
<tr>
<td>Use Nonverbal Cues</td>
<td>A staff member tells 3 participants to close their eyes...The staff member then... closes her own eyes... then points to her eyes.</td>
<td>A staff member pushes the wheelchair directly behind the participant and tells him to sit down...</td>
</tr>
<tr>
<td>Reduce Background Noise</td>
<td>[A staff member] speaks...they do not respond...starts to use hand motions, still no response...turns off the music and tries again and they respond.</td>
<td>[During announcements] babble is getting louder and there is more “shh-shh”...</td>
</tr>
</tbody>
</table>
Qualitative/Formative Research

Focus Group Transcript Discussion

Transcript Coding Scheme

Hearing & Communication Intervention

<table>
<thead>
<tr>
<th>Pathology</th>
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</thead>
<tbody>
<tr>
<td>Age-related Hearing Loss</td>
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<tr>
<td>Cognitive Deficits</td>
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Verbrugge-Jette Disablement Model
Multicomponent Intervention

- Step 1: Acoustic Modifications
- Step 2: Staff Training
- Step 3: Small group pocket talker practice

Acoustic Modification
Staff Sensitivity Training

Communication Tips and Tricks
1. Attention First
2. Get Face to Face
3. Speak Slowly
4. Big Ideas and Key Words

Orientation to the Pocket Talker
- Microphone
- Headset
- Tone
- ON/OFF Volume

Small Group

Participants
- 5 PACE participants
- Chosen in partnership with the recreation, rehabilitation, & medical teams
- Hearing loss & cognitive impairment

Approach
Outcomes of Interest

- Acoustics
  - Ambient noise, reverberation, SNR

- Staff training
  - Burden questionnaire, Satisfaction survey

- Individuals
  - Behavioral engagement in activities

Results

Exemplar data from 1 participant at baseline and 1-month post intervention
Direct observation of behaviors during 10 minute intervals; collected over multiple days
Results

Exemplar data from 1 participant at baseline and 1-month post intervention
Direct observation of behaviors during 10 minute intervals; collected over multiple days

84% of staff participants believed that PACE participants benefitted ‘a great deal’ from the hearing intervention program

- “This situation helped me understand the hearing challenges of the elderly is [sic] greater than I thought.”
- “By using this device it not only helps the participant to understand clearly what is being said to them, it also helps the caregiver by not being overwhelmed in communication.”
- “I enjoyed the training. It was very helpful to me when dealing with the participants.”
Key Informants Interview

• Director of Operations & Director of Recreation Therapy

• Reported that participants who are using the Pocketalkers® are:
  – Less isolated than before
  – Having more active conversations, less passive observing

• Requested more follow-up trainings for staff including situational role play

Next steps

• Evaluate the approach at multiple PACE sites

• Improve consistent use of device during activities
  – Communication Champion?

• Manualize the staff and small group trainings
Calls to Action

• President’s Council of Advisors on Science and Technology
  – Create a new FDA-regulated class of Over-the-counter Hearing Aids

• National Academies of Science, Engineering, and Medicine
  – Hearing Health Care for Adults:
    Priorities for Improving Access and Affordability
  – 12 Recommendations

• President Trump Signs OTC Hearing Aid Legislation into Law
  – August 18, 2017

Simple Devices
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  – Staff & Participants

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QUESTIONS?