

Toss the Workbooks:

Practical Approaches for Person-Centered Dementia Care

Becky Khayum, M.S., CCC-SLP, Northwestern CNADC, MemoryCare Corporation

Emily Rogalski, PhD, Northwestern CNADC

Darby Morhardt, LCSW, PhD, Northwestern CNADC

Summary:

As the US population continues to age, the number of people with a dementia diagnosis on a healthcare professionals' caseloads will continue to increase, across all treatment settings. This presentation will describe use of Northwestern's Care Pathway Model (CARE-D) for diagnosing and treating different types of dementia syndromes. It emphasizes the importance of an interdisciplinary approach to care, with the overarching goal of increasing life participation in meaningful activities throughout the progression of the disease. The role of the speech-language pathologist and occupational therapist will be discussed, while illustrating practical, evidence-based interventions that can increase engagement in meaningful activities. This presentation will also provide examples of how technology can be creatively integrated into treatment interventions to support life participation.

Understanding Dementia Terminology: Problems in the Nomenclature

- **Dementia Syndrome:** This term describes the clinical presentation of symptoms that are occurring as a result of a neurodegenerative disease in the brain. 4 clinical pathways of initial presenting symptoms are described (Morhardt et al., 2015): Memory (e.g., Dementia of the Alzheimer's type); Language (e.g., Primary Progressive Aphasia); Visuospatial (e.g., Posterior Cortical Atrophy); Behavior (e.g., Behavioral Variant of Frontotemporal Dementia)
- **Disease Neuropathology:** The deposit of abnormal proteins (e.g., Beta Amyloid, Tau, TDP-43) cause brain atrophy and dysfunction. The location of these abnormal proteins determines the clinical presentation. The disease starts in one area of the brain, and then spreads throughout. There are different types of neuropathologies that may cause dementia syndromes: e.g., Alzheimer's Disease pathology; FTLN pathology. There is no 1:1 correlation between dementia syndrome and neuropathology. For example: Alzheimer's disease pathology can cause Alzheimer's Dementia, Primary Progressive Aphasia, and Posterior Cortical Atrophy. Development and use of biomarkers is becoming more common to predict the suspected neuropathology (e.g., spinal tap, amyloid PET scans). Future pharmacological treatments will target the underlying neuropathology.

Why do all speech-language pathologists need to understand this terminology?

Clinicians should be treating the person, not the diagnosis; however, understanding the terminology will play an important role in counseling, particularly as individuals are diagnosed earlier and earlier in the disease process over the next decade.

Overview of Dementia Syndrome Profiles

- Amnesic dementia – primary initial symptom is short term memory loss
- Behavioral dementia – primary initial symptoms: personality changes, including problems with inhibition, self-regulation, executive function, and a loss of empathy. May exhibit inappropriate social interactions and behaviors. Typically have anosognosia, or poor insight into deficits. Some may experience apathy and problems with initiation.
- Aphasic dementia – primary initial symptoms: difficulty with word finding, pronouncing words, comprehending conversations, reading and writing
- Visuospatial dementia – primary initial symptoms: difficulty with visual processing, such as perceiving objects and spatial relationships among objects. May have problems with navigation around the environment or locating objects in their environment.

Person-Centered Speech-Language Pathology Assessment: Flipping the Rehab Model

- What is the purpose of your evaluation?
 - Are you a part of a diagnostic team?
 - Is your role to provide treatment targeting functional activities?
- Diagnostic Assessment- use of impairment-based, standardized tests are helpful. These types of tests are NOT helpful to form a functional plan of care. They also won't typically capture functional gains in this population.
- Person-Centered Assessment: Life Participation Approach
 - Client –directed rather than clinician-directed: individual and family members play an active role in identifying therapy goals
 - Focuses upon utilizing individual's preserved strengths, rather than identifying and strengthening weaknesses
 - All goals focus upon meaningful, purposeful activities; integrating use of strategies into individual's daily routines and activities
 - Actively engaging care partners, family members, and care givers into assessment and treatment sessions, in order to promote generalization of strategies
 - Standardized testing may be used to further investigate cognitive areas that are impacting life participation
 - Utilize standardized tests that focus upon participation in functional activities, such as the Assessment for Living with Aphasia (ALA), Assessment of Language-Related Functional Activities (ALFA), Communication Activities of Daily Living (CADL-3), Communication Confidence Rating Scale (CCRSA), or Social Networks Inventory (SNI)
 - Completing education and training throughout the evaluation
 - Determining what strategies will need to be adjusted over time and introducing new strategies that will be needed in the next phase of the disease

Goal Writing for People with Dementia

- Developing plan of care should always include the input from the individual and family
- Goals should be individualized and should focus upon functional outcomes
- Goals should be realistic; may need adjust the level of cueing as the disease progresses so that goals can be met (in order to ensure reimbursement)

Summary of Evidence-Based Cognitive-Communication Interventions:

Amnestic Dementia Syndromes

- Visual memory aids and graphic cuing systems
 - Take advantage of individual's preserved abilities (reading), in order to facilitate recall
 - Examples:
 - i. Memory Wallet
 - ii. Memory Book
 - iii. Signs
 - iv. ADL visual sequencing aids
 - v. Schedule/Reminder Board
 - vi. Electronic Reminders
 - Use to target functional activities:
 1. Schedule management
 2. Medication Management
 3. Misplacing important objects
 4. Increase recall of names and personal facts
 5. Increase recall of safety precautions
 6. Increase recall of conversations/recent events
 7. Increase initiation of meaningful activities
 8. Increase sequencing for ADL's (use of computer, cooking, dressing)
 9. Reducing repetitive questions
- Spaced Retrieval Training
 - A systematic method of targeting retrieval of functional information at increasing intervals, to facilitate recall
 - Takes advantage of preserved procedural memory, to encode targeted information
- Errorless Learning
 - Learning that occurs in a facilitated environment that eliminates errors (do not allow the individual to guess)
 - Successfully complete target behavior or responses many times in order to increase proper encoding of the correct answer
- Vanishing Cues

- Glisky defines the method of vanishing cues as “the systematic reduction of cue information across learning trials”.
- Fading cues or prompts
- Environmental Modifications
 - Lighting, Color schemes, Flooring, Furniture and hangings, Noise and sound
- Simulated Presence Treatment: emotion-oriented, non-pharmacological intervention that is based upon psychological attachment theories. Recorded videos with the faces and voices of the closest relatives are utilized to increase participation in desired activities or to redirect. May be used to help with agitation or challenging behaviors.
- Montessori for Dementia
 - Helps to develop a role for people with dementia, based upon their personal interests and abilities
 - Utilizes a “prepared” environment, where materials and visual cues are displayed and easily accessible for use
 - Individuals are encouraged to choose preferred activities and can work at their own pace
 - Montessori engagement may occur in groups and individually.
 - Montessori activities encourage engagement and movement throughout the day, with a focus upon increasing independence
 - Individuals should have frequent and safe access to the outdoors

Aphasic Dementia Syndromes

- Self-cueing strategies for lexical retrieval: semantic circumlocution, phonemic self-cueing, written cues, gestures, visualization
- Motor Speech Production Strategies: Syllable segmentation, modified melodic intonation strategies, Rosenbek’s 8-step continuum: to increase pronunciation of personally relevant multisyllabic words
- Home Exercise Program targeting personally relevant words: home program designed to increased individuals’ lexical retrieval and motor speech production of personally relevant words that they frequently use during daily conversations
- Script Training: Individual and care partner are trained to formulate and rehearse scripts, to increase ability to speak via telephone, tell stories or jokes, order food at a restaurant, say prayers, or explain their condition to others
- Communication wallet/book/board: portable aids (word-based or picture-based) so that individual can easily look up important words or information during conversation; family can also use aids to facilitate comprehension
- Facilitating auditory comprehension: training caregiver on strategies such as simplifying sentence structure, slowing rate or increasing use of nonverbal cues. Also focus on using communication aids to supplement spoken words (e.g., writing key words down on paper or a Boogie Board; pointing to pictures on a communication board; pulling up pictures on smart phone using Siri)
- High-tech AAC/Speech Generating Device – need to consider:

- Individual's motivation to use an AAC device
- Individual's fine motor and sequencing skills (Can he successfully operate a computer, TV remote or cell phone?)
- Individual's level of family support, as someone will be needed to help patient program and effectively use the device as the disease progresses
- Out of pocket cost for the individual/family
- Trialing the use of a device in the individual's home environment during functional situations
- Strategies to Facilitate Alexia & Agraphia
 - Voice Recognition Technology for spelling
 - Audio books/word definition features for reading
 - Personalized writing templates for daily activities

Helpful Apps for People with Dementia (with assistance from family members):

- Train as early as possible in the disease and always complement with simpler strategies not involving technology, such as a communication wallet/book (Holland et al., 2012):
 - a. Story Creator –photo album app: can be used for communication purposes, such as telling stories
 - b. Day One – photo calendar app. Users can take photos and write captions each day. The app sequences all of the photos, so they can be used in daily conversations
 - c. Siri or other voice command apps – to assist with spelling OR family/staff members can pull up pictures to help with comprehension
 - d. Ginger Keyboard – spelling and grammar app, to help correct errors while writing
 - e. vBox – reading app: will read emails aloud to user
 - f. Quizlet – quiz app: allows user to make personalized flashcards to practice personally relevant words
 - g. PicCollage – picture collage app; to make personalized communication boards/books that contain personal or realistic pictures
 - h. Microsoft Powerpoint – presentation app; use to easily create communication wallets (printing 2, 4, or 6 slides to a page)

Cognitive-Communication Treatment for People with Dementia
Integration of Evidence-based Approaches and Technology to Support Functional Tasks

Functional Task	Evidence-Based Approach	Technological Support
Schedule Management	<ul style="list-style-type: none"> • Electronic Memory Aids • Visual and Graphic Cueing Systems • Spaced Retrieval Learning 	<ul style="list-style-type: none"> • Large display clock with date "dementia clock" • Electronic Calendars • Electronic Reminders/Alerts
Medication Management	<ul style="list-style-type: none"> • Electronic Memory Aids 	<ul style="list-style-type: none"> • Automated Pill Dispenser • Medication Reminder wrist watch • Electronic reminders on smart phone or table
Cooking	<ul style="list-style-type: none"> • Electronic Memory Aids • Visual and Graphic Cueing Systems <ul style="list-style-type: none"> • Grocery List Visual Aid • Meal Planner Aid • Recipe Visual Aid • Fading Cues 	<ul style="list-style-type: none"> • Apps: Pic Collage • Word Processing Program
Recall of functional information for daily interactions/ADL's: <ul style="list-style-type: none"> • Daily conversations • Recent and past events • People/ names • Personal information • Safety Precautions 	<ul style="list-style-type: none"> • Visual and Graphic Cueing Systems <ul style="list-style-type: none"> • Memory Book/Wallet • Spaced Retrieval Training • Errorless Learning • Environmental modifications 	<ul style="list-style-type: none"> • Apps: Day One, Story Creator, Microsoft PowerPoint, Pic Collage, Memory Garden, Talk Photo
Use of technological devices (TV remote, phone, tablet, computer, microwave)	<ul style="list-style-type: none"> • Visual and Graphic Cueing Systems <ul style="list-style-type: none"> • Visual Aids for memory and sequencing • Environmental modifications • Electronic Memory Aids • Fading cues 	<ul style="list-style-type: none"> • Apps: Pic Collage • Word Processing Program • Simple large button TV remote • Memory Phone • Jitterbug phone
Organization/Locating functional items	<ul style="list-style-type: none"> • Environmental modifications • Visual memory aids • Fading cues 	<ul style="list-style-type: none"> • Apps: Pic Collage, Word Processing Program
Participation in meaningful activities/ADL's	<ul style="list-style-type: none"> • Visual and graphic cueing systems <ul style="list-style-type: none"> • Memory book/wallet • Personalized activity aids • Environmental modifications • Fading Cues • Montessori 	<ul style="list-style-type: none"> • Apps: Pic Collage, Memory Manager • Word Processing Program

Application of Technology for Aphasia, Alexia, and Agraphia

Functional Task	Evidence-Based Approach	Technological Support
Daily Conversation – Expressive Language	<ul style="list-style-type: none"> • Semantic Circumlocution • Targeted Retrieval of Personally Relevant Words • Word or Picture-Based Communication Aids (communication wallet, book, or boards) • Electronic Communication Aids 	<ul style="list-style-type: none"> • Apps: Quizlet, FlipCards Pro (word rehearsal) • Microsoft PowerPoint, PicCollage (making aids) • Word Processing Program • Use of photo stream on smart phone or tablet • Apps: DayOne, Story Creator
Daily Conversation – Receptive Language	<ul style="list-style-type: none"> • Positive communication strategies – care partner • Environmental modification • Written cues • Word or Picture-Based Communication Aids 	<ul style="list-style-type: none"> • Word Processing Program • Apps: PicCollage
Telephone calls	<ul style="list-style-type: none"> • Script Training • Word-based communication aids 	<ul style="list-style-type: none"> • Word Processing Program
Speaking with strangers or in groups	<ul style="list-style-type: none"> • Script training • Word or Picture-Based Communication Aids <ul style="list-style-type: none"> • Communication Wallet/Book 	<ul style="list-style-type: none"> • Word Processing Program • PicCollage
Reading	<ul style="list-style-type: none"> • Auditory Cues to facilitate comprehension • Visual Cues to facilitate comprehension 	<ul style="list-style-type: none"> • Audio books • Text-to-speak options on smart phones/tablets • Picture support technology (i.e., iBooks, linked with Wikipedia)
Writing	<ul style="list-style-type: none"> • Assistive technology for spelling and grammar • Written aids/templates <ul style="list-style-type: none"> • Email or letter templates • To Do list templates • Phone message templates 	<ul style="list-style-type: none"> • Spell/grammar check features on word processing program • Speech Recognition software: E.g., Alexa, Siri, Cortana • Apps: Ginger Keyboard (spelling and grammar); Personal Assistant app (To Do lists)

Practical Goal Writing Guide for Person-Centered Dementia Care

Client will....

Therapeutic Task

Evidence-Based
Intervention

Target Accuracy - Realistic

Level and Types of Cues

To Do What? (list functional activity)

Bad goals:

- Client will be Oriented x3 x 5 consecutive sessions
- Client will complete functional recall tasks with 90% acc, min cues.
- Client will state safety precautions with 90% acc, min cues.
- Client will complete generative naming tasks with 90% acc, min cues.

Collaborative Goal Forming: Client Directed

- Write out a list of the many concerns your client, their care partners, and staff members have expressed during the evaluation. Tell them you would like to write some therapy goals with them. Ask which areas are the top priorities for them (get input from care partner if diagnosed individual unable to respond or if they lack insight to provide input).
- Based upon their selections, write goals for them using the template above. Determine what THEIR desired outcome is. If it is unrealistic, provide education and support to set a more realistic goal (manage their expectations). Determine the current status for the target goals to use as a baseline.
- Enter these goals in your evaluation write-up/Plan of Care.
 - Barrier: “My Rehab Director makes me complete my entire evaluation write up the day of the evaluation, before I have had a chance to get in touch with family members for their input... what do I do?”
 - Solution: Explain the situation to your rehab director. Ask if you can sign your evaluation report after speaking with the family members. Remind your rehab director that cognitive-communication treatment for people with dementia requires that family members be involved in the goal setting and outcomes. You will be unable to demonstrate progress towards your goals in therapy without the family’s input. If your director still insists that the evaluation needs to be completed that day, write 1-2 goals with the information you have. Then add additional goals to target on your progress notes, after you’ve had a chance to speak with family members.
 - Barrier: “We use an electronic health record system that has pre-determined goal banks. It is very difficult for me to write personalized goals using this system.”
 - Solution: Speak to your rehab director about this problem, to determine if an “other” tab could be created in the system, where personalized goals could be entered. If not, then use 1-2 pre-set goals in the EHR, but write your person-centered goals in the body of your evaluation write-up (if possible), or in the body of your first treatment note.

Functional Goal Bank (modify goals for your individual clients)

Client will recall 2/3 daily events and conversations x 2 consecutive sessions, given minimal verbal and gestural cues, using a visual and graphic cueing aid (schedule board/reminder board), to increase schedule management and recall of daily conversations.

Client will utilize a memory wallet with graphic cues to initiate conversation with grandson in 3/3 opportunities, given minimal gestural and verbal cues, per spouse report on written log, to increase participation in daily conversations with grandchildren.

Client will locate 3/3 functional objects around the home with use of organizational strategies/external memory aids x 2 consecutive sessions, given minimal verbal cues, to increase ability to participate in daily household activities.

Client will complete 4/5 steps to prepare a simple recipe with use of environmental modifications, organizational strategies, and visual sequencing aids, given minimal verbal cues, to increase ability to prepare snacks/simple meals for family members.

Client will decrease frequency of perseverative questions regarding time of next meal to <3x/day x 1 week with use of graphic cues in memory wallet + spaced retrieval training, given minimal verbal cues from spouse, to increase recall of functional information for daily schedule.

Client will sequence 5/5 steps to place a call to spouse on cell phone, with use of visual sequence aid and moderate vanishing cues, to increase ability to make phone calls to family members and friends to communicate daily wants/needs.

Client will sequence 4/5 steps to set dinner table with use of graphic cueing aid for task initiation, picture memory aid for item placement and visual contrast, and moderate vanishing cues, to increase ability to participate in household ADL tasks.

Client will retrieve names of 8/10 personally relevant people and places in response to open-ended questions with use of communication wallet, given minimal verbal and gestural cues, to increase client's ability to participate in conversations with family, friends, and staff members.

Client will demonstrate comprehension of 4/5 open ended questions and one-step directions with use of written key words on Boogie Board and picture cues in a communication book, given moderate verbal/gestural cues from spouse/facility staff, to increase ability to comprehend daily conversations with spouse and facility staff.

Client will retrieve 9/10 personally relevant words pertaining to hobbies (gardening, baseball, World War II), targeted in home program during structured tasks, given minimal verbal cues, to increase ability to communicate at the conversation level with family and friends.

Client will pronounce personally relevant multisyllabic words pertaining to sheep herding commands with 80% acc during structured tasks, with use of syllable segmentation and visual articulatory cues hierarchy, provided with moderate cues from spouse, to increase client's ability to participate in occupation of sheep herding, by giving commands to sheep dog.

Client will increase verbal fluency by 50% (measured by length of time, number of errors) during script training tasks for ordering food at drive-thru's, given min verbal/written cues, to increase ability to independently order food at Dairy Queen and Steak n Shake drive thru's.

Client will increase reading comprehension during reading of novels with use of multimodality cueing system: auditory cues (e.g. audio books) while simultaneously reading written text, 90% acc, to increase ability to read novels for pleasure.

Client will construct emails and work reports with 90% acc, with use of visual graphic cueing aids, along with iPhone/iPad apps, given minimal cues from spouse, to increase ability to participate in daily correspondence and meetings in the work environment.

Psychosocial Considerations

Alzheimer's disease dementia and other neurodegenerative disorders present many challenges for individuals and their family members. Due to the impairment of memory, language and other cognitive domains and the progressive nature of the condition, capacity for relational connection is altered in varied ways and can affect couple bonds and family life. Roles and responsibilities inevitably change. Caregiving stresses over time can have serious health and mental health consequences and reverberate throughout the family and other relationships. Key to adapting and coping is a reliance on the strengths and abilities of the diagnosed person, care partners and the family as a whole.

Responses to a diagnosis of dementia

The way person and their family react to a diagnosis of dementia and the ways they adapt and cope are influenced by a range of factors such as their personality, their previous experiences, their understanding of the diagnosis, the social and emotional support they receive and their environment. People will react differently and may adopt different strategies at different times. Many individuals with dementia are aware and insightful regarding their diagnosis and changes in cognition; however, some may not (or be able to) acknowledge that things are becoming more difficult.

Identity

A person's sense of identity is shaped by many things, including their relationships, roles in the family and community, hobbies and occupation. Changes in people's abilities caused by dementia, however, may lead to changes in their sense of identity. It is important that the people around the person with dementia are aware of this as they are able to influence how the person sees themselves. Treat the person with dementia as an individual and value them as such rather than defining them by the condition or focusing on negative aspects such as lost abilities.

Relationships, roles and responsibilities

Relationships with the people around us form a central part of our identity. Relationships can change when someone has dementia. People with dementia can easily become isolated or avoided by those around them. They may lose contact with friends and family, who may fear not knowing how to react to and communicate with them. It is important to support existing relationships and encourage continued participation in social groups, community activities, religious activities and hobbies. The progressive changes in cognition and behavior due to the diagnosis of dementia may also change the relationships between the person and those closest to them, who may find they have taken on the identity of a 'caregiver'. A caregiver may find they have an increasing number of roles in the relationship and feel like they are on an emotional roller coaster. Caregivers are at increased risk for depression. On the one hand, caregiving can also be a rewarding personal experience. On the other hand, exhaustion, worry, inadequate resources and continuous care demands are enormously stressful. Paying attention to and helping caregivers take responsibility for their own self care is part of good patient care overall.

Options for Information and Support

Dementia Education

- Northwestern University Cognitive Neurology and Alzheimer's disease Center <http://www.brain.northwestern.edu>
- Alzheimer's Disease Education and Referral (ADEAR) Center <http://www.nia.nih.gov/alzheimers>
- Alzheimer's Association <http://www.alz.org>
- Alzheimer's Foundation of American <http://alzfdn.org>
- The Lewy Body Dementia Association <http://www.lbda.org>
- Association for Frontotemporal Degeneration <http://www.theaftd.org>
- Cure PSP <http://www.psp.org>

Legal and Financial Resources

- Social Security Administration <https://www.ssa.gov>
- National Academy of Elderlaw Attorneys <http://www.naela.org>

Respite Care and Support

- Administration for Community Living <https://www.acl.gov>
- Home Care Association of America <http://www.hcaoa.org>
- Adult Day Services <https://www.nadsa.org>

References – Amnestic Dementia Syndromes

1. Alzheimer's Association. 2014 Alzheimer's Disease Facts and Figures. www.alzheimers.org. 2014. http://www.alz.org/downloads/Facts_Figures_2014.pdf. Accessed March 8, 2015.
2. Coste JK. Learning to Speak Alzheimer's: The New Approach to Living Positively with Alzheimer's Disease. United Kingdom: Vermilion; 2003.
3. Bourgeois M. Evaluating Memory Wallets in Conversations with Persons with Dementia. *Journal of Speech, Language, and Hearing Research*. 1992;Vol. 35, 1344-1357.
4. Bourgeois MS, Ph.D. Memory Books and Other Graphic Cuing Systems: Practical Communication and Memory Aids for Adults with Dementia. 1st ed. United States: Health Professions Press, U.S.; 2007.
5. Bourgeois M. A functional approach to assessment in Dementia: Some new ideas. In: ASHA Healthcare Conference, Las Vegas, NV.; 2014.
6. Holland AL. Counseling in Communications Disorders: A Wellness Perspective. 1st ed. United States: Plural Publishing Inc; 2007.
7. Small JA, Perry J. Do You Remember? How Caregivers Question Their Spouses Who Have Alzheimer's Disease and the Impact on Communication. *Journal of Speech Language and Hearing Research*. 2005;48(1).
8. Hopper T, Bourgeois M, Pimentel J, et al. An evidence-based systematic review on cognitive interventions for individuals with dementia. *American journal of speech-language pathology / American Speech-Language-Hearing Association* 2013;22:126-145.
9. Bourgeois M, Dijkstra K, Burgio L, Allen-Burge R. Memory aids as an augmentative and alternative communication strategy for nursing home residents with dementia. *Augmentative and Alternative Communication*. 2001;17(3):196-210. doi:10.1080/aac.17.3.196.210.
10. Bourgeois MS, Camp C, Rose M, et al. A comparison of training strategies to enhance use of external aids by persons with dementia. *J Commun Disord* 2003;36:361-378
11. Bourgeois M. Teaching Caregivers to Use Memory Aids with Patients with Dementia. *Seminars in Speech and Language*. 1994;15(04):291-305. doi:10.1055/s-2008-1064152.
12. Bourgeois MS. Therapy Techniques for Mild Cognitive Impairment. *Perspectives on Neurophysiology and Neurogenic Speech and Language Disorders*. 2013;23(1). doi:10.1044/nnsld23.1.23.
13. Oren S, Willerton C, Small J. Effects of Spaced Retrieval Training on Semantic Memory in Alzheimer's Disease: A Systematic Review. *Journal of Speech Language and Hearing Research*. 2014;57(1). doi:10.1044/1092-4388(2013/12-0352).
14. Small JA. A new frontier in spaced retrieval memory training for persons with Alzheimer's disease. *Neuropsychological Rehabilitation*. 2012;22(3):329-361. doi:10.1080/09602011.2011.640468.

15. Brush J, Camp C. Using Spaced Retrieval as an Intervention During Speech-Language Therapy. *Clinical Gerontologist*. 1998;19(1):51-64. doi:10.1300/j018v19n01_05.
16. Camp, C., & Stevens, A. (1990). Spaced-retrieval: A memory intervention for dementia of the Alzheimer's type. *Journal of Aging and Mental Health*, 10, 58-61.
17. Camp CJ. Spaced retrieval: A model for dissemination of a cognitive intervention for persons with dementia. In: Attix DK, Welsh-Bohmer KA, eds. *Geriatric Neuropsychology: Assessment and Intervention*. New York, NY: The Guilford Press, 2006: 275-292.
18. Clare L, Jones RSP. Errorless Learning in the Rehabilitation of Memory Impairment: A Critical Review. *Neuropsychology Review*. 2008;18(1):1-23. doi:10.1007/s11065-008-9051-4.
19. Egan M, Berube D, Racine G, Leonard C, Rochon E. Methods to Enhance Verbal Communication between Individuals with Alzheimer's Disease and Their Formal and Informal Caregivers: A Systematic Review. *Int J Alzheimers Dis* 2010;2010.
20. Lorell D. Communication strategies for caregivers and patients with mild-to-moderate dementia. *Alzheimer's & Dementia*. 2012;8(4).
21. Mahendra, N., Fremont, K., Dionne, E. (2013). Teaching future providers about dementia: The impact of service learning. *Seminars in Speech and Language*, 34 (1), 5-17. doi: 10.1055/s-0033-1337390

References – Aphasic Dementia Syndromes

- Beeson, P. , Hirsch, F., & Rewega, M., (2002). Successful single word writing treatment: Experimental analysis of four cases. *Aphasiology*, 16(4-6), 473-491.
- Beeson, P.M., King, R. M., Bonakdarpour, B., Henry, M.L., Cho, H & Rapcsak, S.Z (2011). Positive effects of language treatment for the logopenic variant of primary progressive aphasia. *J Mol Neurosci*, 45(3), 724-736.
- Brendel, B., & Ziegler, W. (2008). Effectiveness of metrical pacing in the treatment of apraxia of speech. *Aphasiology*, 22(1), 77-102.
- Croot, K., Nickels, L., Laurence, F., & Manning, M. (2009). Impairment- and activity/participation-directed interventions in progressive language impairment: Clinical and theoretical issues. *Aphasiology*, 23(2), 125-160.
- Decker, D. A., & Heilman, K.M. (2008) Steroid treatment of primary progressive aphasia. *Arch Neurol*, 65 (11), 1533-1535.
- Farrajota, L., Maruta C, Maroco J, Martins I.P, Guerreiro M., & de Mendonça A (2012) Speech therapy in primary progressive aphasia: a pilot study. *Dementia and Geriatric Cognitive Disorders*, 2:321–331
- Finocchiaro, C., Maimone, M., Brighina, F., Piccoli, T., Giglia, G., & Fierro, B. (2006). A case study of primary progressive aphasia: Improvement on verbs after rTMS treatment. *Neurocase*, 12, 317-321.
- Henry, M.L., Meese, M.V., Truong, S., Babiak, M.C., Miller, B.L., & Gorno-Tempini, M.L. (2013). Treatment for Apraxia of Speech in Nonfluent Variant Primary Progressive Aphasia. *Behavioral Neurology*, 26(1-2), 77-88.
- Holland, A.L., Weinberg, P., & Dittelman, J. (2012). How to Use Apps Clinically in the Treatment of Aphasia. *Seminars in Speech and language: Adult focus*, 33 (3), 223-233
- Johnson, N.A., Rademaker, A., Weintraub, S., Gitelman, D., Wienecke, C., & Mesulam, M. (2010). Pilot trial of memantine in primary progressive aphasia. *Alzheimer Dis Assoc Disord*, 24(3), 308.
- Kertesz, A., Morlog, D., Light, M., Blair, M., Davidson, W., Jesso, S., & Brashear, R. (2008). Galantamine in frontotemporal dementia and primary progressive aphasia. *Dement Geriatr Cogn Disord*, 25(2), 178-185.
- McNeil, M.R., Small, S.L., Masterson, R.J., & Tepanta, R.D. (1995). Behavioural and pharmacological treatment of lexical-semantic deficits in a single patient with primary progressive aphasia. *American Journal of Speech-Language Pathology*, 4, 76-93.

Reed, D.A., Johnson, N.A., Thompson, C., Weintraub, S., & Mesulam, M-M. (2004). A clinical trial of bromocriptine for treatment of primary progressive aphasia. *Annals of Neurology*, 56(5), 750.

Sapolsky, D., Bakkour, A., Negreira, A., Nalipinski, P., Weintraub, S., Mesulam, M.-M., Caplan, D., & Dickerson, B.C. (2010). Cortical neuroanatomic correlates of symptom severity in primary progressive aphasia. *Neurology*, 75 (4), 358-366.

Youmans, G. L., Holland, A. L., Munoz, M. & Bourgeois, M. (2005). Script training and automaticity in two individuals with aphasia. *Aphasiology*, 19, 435-450.