Aging to Dementia Continuum: Critical Roles for Speech-Language Pathologists & Audiologists

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- Life in 3 countries and cultures
- Loss and resilience – early life themes
- “Tough love” mentoring
- Clients and students – the best teachers
Learning objectives

1. Define MCI and Dementia
2. Identify leading causes and characteristics of 4 types of irreversible dementias
3. Identify biopsychosocial, life participation, and social justice approaches that inform assessment and interventions with OA
4. List evidence-based examples of screening and assessment measures useful on the aging-MCI-dementia spectrum
5. Describe key categories of intervention techniques for persons with MCI and dementia
6. Discuss the importance of interprofessional practice in serving persons with MCI and dementia

Mild Cognitive Impairment
MCI

What is MCI?

• Symptomatology - between the cognitive decline of normal aging and the more serious impairments of AD. (Petersen, 2003; Mayo Clinic, 2009)

• A prodromal state for dementia.

• Per the American College of Physicians, MCI affects approximately 20% of the population past the age of 70 years.
Relationship between healthy aging, MCI, and Alzheimer’s disease

MCI and AD Trajectory

Charting the Course of Healthy Aging, MCI, and AD
Clinical Criteria for MCI per the American Academy of Neurology

- Memory complaint
- Objective memory impairment for age and education level
- Generally intact overall cognitive function
- Essentially preserved activities of daily living
- Not demented

Mayo Clinic Alzheimer Disease Center

Types of MCI

- Amnestic MCI-Single domain
  - Most common
  - Majority of clients with amnestic MCI progress to AD

- Amnestic MCI – Multiple Domain

- Nonamnestic MCI-Single Domain
  Relatively isolated impairment in a single non-memory domain such as executive function, visuospatial processing, or language.

- Nonamnestic MCI - Multiple domain
  - Slight impairment in multiple non-memory domains, not enough to constitute dementia

MCI and brain-based changes

- MCI is associated with the same types of brain changes seen in AD or other dementia types
- Difference is in the extent of these changes in that these changes are more limited in MCI
- Noteworthy changes are:
  - Beta amyloid plaques
  - Neurofibrillary tangles (of tau protein)
  - Shrinkage of the hippocampus
  - Evidence of undocumented strokes or TIAs
  - Lewy bodies
**MCI types and progression to dementia**

- Persons with amnestic MCI are more likely to convert to a dementia than non-amnestic MCI types.
- The greater the number of cognitive deficits and the earlier they present, the greater the possibility of conversion of MCI to dementia.
- When MCI converts to dementia, it most often converts to AD.

**Screening and assessment for MCI**

Measures that have been used traditionally:

- **Clinical Dementia Rating Scale**
  
  CDR = 0.5 suggests MCI

- **Global Deterioration Scale**
  
  GDS Stage 3 suggests MCI

- **Mini Mental State Exam (MMSE)**

- **Nonstandardized assessment**
  
  Using subtests of memory or cognitive batteries
Measures preferred by researchers

- MMSE Scores with age- and education corrections (1993, JAMA)
- Dementia Rating Scale (DRS-2; Mattis et al., 1982)
- Montreal Cognitive Assessment (MoCA) [http://www.mocatest.org](http://www.mocatest.org) (Nasreddine et al., 2005)
- Repeatable Battery for the Assessment of Neuropsychological Status (RBANS; Randolph et al., 1998)
- CLQT

Case Files
Meet Mr. BH

Age: 80, Yrs Ed: 18

- Initial referral: Episodes of being verbally argumentative, got slightly more agitated than necessary in stray situations
- Living situation/ADLs: Independent living, no ADL impairment, no self-report of memory problems*, staff reported increased forgetting
- MMSE: Score 25/30; not normal for his age and yrs of education
- Reading comprehension screen
- Other: Mild to moderate high frequency HL, U/L hg aid, no speech discrimination problems, no vision problems, not depressed
Mr. BH: MCI

- Attention: No impairment (below average)
- Initiation/Perseveration: Mild impairment
- Visuospatial Processing: No impairment (below average)
- Conceptualization (semantic memory): No impairment (below average)
- Memory: 19th – 28th percentile (mild impairment)
- Rivermead Behavioral Memory Test-2
- Episodic memory for visual information – Unimpaired
  Episodic memory for verbal/spatial information – Mildly Impaired
- Prospective memory: Unimpaired
- Orientation: Unimpaired

Summary of findings for BH

- DRS-2 and RBMT-2: Multiple-domain MCI

- Criteria met for diagnosis of dementia (AD) 3 years later, although prescribed Aricept one year from the first testing.

Dementia
Dementia is a syndrome characterized by acquired, persistent impairment of multiple cognitive domains

DSM-5 and Dementia

- Neurocognitive Disorders
  - Mild NCD (1-2 SD range; 3rd to 16th percentile)
  - Major NCD (Below 2 SD or 3rd percentile)
    - Significant cognitive decline
    - IADLs affected
    - Not due to delirium or other mental disorder
    - E.g., Dementia (2 or more cognitive domains affected), TBI
Leading Causes of Irreversible Dementia

- Alzheimer’s disease (AD)
- Vascular disease (VaD)
- Frontotemporal lobar degeneration (FTLD)
- Mixed Dementia
  - Lewy Bodies (DLB)
  - Corticobasal degeneration (CBD)
  - AIDS Dementia Complex (ADC)
  - Dementia due to Parkinson’s Disease (DPD)

Quotable Quote

The point is Alzheimer’s is a long illness and has taken so much from us. I don’t want to spend 5 or 10 or 20 years wringing my hands and feeling sorry. My motto is “Alzheimer’s with attitude,” or on some days, “Damn the dementia.”

FRED, a husband
Voices of Alzheimer’s

Alzheimer’s Disease (AD): Facts at a glance

- the U.S. develops AD.
- 5.8 million Americans have a diagnosis of AD.
- Women are 2/3rds of Americans with AD.
- AD is 6th leading cause of death in the U.S. 1 in 3 seniors dies with AD or another dementia.

Katzman (1998); Alzheimer’s Association (2019); Plassman et al., 2017
California: AD at a glance

Estimated # of seniors with AD

670,000

Expected change in % by 2025

25.4%

840,000

http://www.alz.org/facts- Custom data for CA

Michigan: AD at a glance

Estimated # of seniors with AD

190,000

Expected change in % by 2025

15.8%

220,000

http://www.alz.org/facts- Custom data for MI

Source: http://www.worldalzreport2015.org/
Types of Dementia

AD: Historical Perspective

- 51 years old
- Dramatic loss of memory
- Difficulty sleeping
- Disorientation
- Delusional thinking
- Problems with spoken and written language
- Died at 56

Auguste Deter – 1st known case of AD

Dr. Alois Alzheimer
Cellular/molecular changes in AD

2 abnormal structures:
**Beta-amyloid plaques**
Dense protein deposits that accumulate outside and around neurons

**Neurofibrillary tangles**
Twisted fibers of tau protein that build up inside neurons

AD: Neuroimaging findings

1. Cortex shrivels up.
2. Severe atrophy in the hippocampus.
3. Enlarged ventricles.
4. Reduced regional brain metabolism.

AD: Progression of neuropathology

Mild dementia
Moderate dementia
Severe dementia

http://www.alz.org/alzheimers_disease_6710.asp
AD: Cognitive-linguistic performance

- Episodic memory: Earliest and most severely affected
- Attention and working memory impairments appear early
- Disorientation to time and place
- Language deficits in naming and discourse in the early stages, with phonology and syntax spared
- Semantic knowledge spared early on, but deteriorates eventually
- Impairments of executive function and visuospatial ability.

Bayles, 1991; Bayles & Tomita, 2007; Hickey & Bourgeois, 2018; Genova, 2009

Case Profile 1: Alzheimer’s Disease

KN: 78/F, Yrs Ed: 16, former nurse
Medical History: Hypertension, hypothyroidism, gout, osteoporosis, prior history of breast cancer.
Mini Mental State Examination: 20/30 (norm = 27)
Geriatric Depression Scale-Short Form: Not Depressed
Dementia Rating Scale-2nd ED (DRS-2)
- Initiation/Perseveration: 2nd percentile
- Memory: 4th percentile
- Constructional ability: 41st – 59th percentile (borderline)
- Semantic memory: 90th to 94th percentile
- Attention: 72nd – 81st percentile
Arizona Battery for the Communication Disorders of Dementia (ABCD)
Total score = 12.3
Consistent with moderate dementia

AD: Client Profile

Generative naming for ANIMALS: 10
Animals… the pig jumped over the horse, the horse ran under the cow, the dog barked at the cat…, donkey, mountain lion, buffalo, owls, snipes.
Confrontation naming: 14/20 on the ABCD
Fluent sentence-level speech: Word-finding difficulty, ideational repetition, use of vague referents (e.g., stuff, thing), no paraphasias nor frank syntactic errors. No evidence of apraxia or dysarthria.
Auditory comprehension: Commands/questions: 11/15 (ABCD)
Repetition Subtests on the ABCD: 58/75
Discourse: ABCD Subtests - Object description, Picture description, story recall
**AD: Object Description**

Response of a healthy older adult
Let's see... this is a common object that most people use for writing or drawing. It is long and slender, made of wood on the outside, and has lead or graphite in the center, which is the material that marks paper and is used for writing on paper. Pencils usually have an eraser on one end and a lead point at the other which can be sharpened. Pencils come in all sizes and colors, are not at all expensive and you can buy them at most stores. These days you have mechanical pencils that needn't be sharpened.

Response of this person with AD
This is just a pencil, like any other pencil. I have several of those as do most people. That's how I would describe it.

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**AD: Client profile**

Target Figure on MMSE

<table>
<thead>
<tr>
<th>MMSE Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Write a sentence of your choice</td>
</tr>
</tbody>
</table>

Client Attempt

Clock Drawing

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**AD: Picture Description**

Okay...I see a picture. A nice picture but not in color. A lady...probably the mother here... busy with this thing here (points to dish in her hand). She's busy washing dishes but not paying attention...to her kids...or to the dishes. These children here are eating too many cookies...is it cookies or candy? Yes I see the words cookie jar. So here they are eating cookies without asking mother. This little fella may...what else? Do you have other questions about this picture? It's a picture of a regular day in the kitchen. And these fellas taking cookies, and this one (points to lady) doing her stuff. She's using a lot of water! I wouldn't.
VASCULAR DEMENTIA (VAD)

VaD competes with Lewy body disease as the 2nd most common cause of dementia, after AD.

National Institute on Aging, 2003; Bayles & Tomoeda, 2014

Vascular dementia (VaD)

Referred to as VaD or Vascular Cognitive Impairment (VCI)
- Accounts for approximately 10% of dementia cases.
- M > F
- VCI shares similar risk factors as stroke: AFib, HTN, DM Type II, Hypercholesterolemia
Lifestyle factors: Alcohol abuse, smoking, Lack of physical activity
- Prior Hx of CVA = 9 x increased risk of VaD
- Associated with vascular pathology (cortical and/or subcortical) and a stair-step progression

VaD: Presenting symptoms

VaD involves the sudden onset of any of the following symptoms:
- Confusion and episodic memory impairments
- Wandering or getting lost in familiar places
- Rapid, shuffling gait (history of unsteadiness and/or falling)
- Loss of bowel or bladder control
- Emotional lability
- Difficulty following instructions
- Problems handling money
VaD: Cognitive-linguistic performance and comparison with AD

- Less predictable than AD
- Worse performance than AD on attention, visuospatial function, executive function, and letter fluency tasks.
- More perseverative behavior and apathy observed earlier in disease course
- Better performance on immediate and delayed recall than AD.
- Similar performance as persons with AD on tasks involving working memory, language, processing speed, and constructional praxis.

Mahendra & Engineer, 2009; Bayles & Tomoeda, 2014

VaD: Client Profile

BG: 82/M, Yrs Ed: 14, biracial (Caucasian/Latino)

Medical History: Hypertension, TIA's, Frequent falls, Myocardial infarction over 10 years ago

Mini Mental State Examination = 13/30 (norm = 27)

Dementia Rating Scale-2nd ED (DRS-2)
- Initiation/Perseveration and Memory - below 1st percentile
- Constructional ability and semantic memory - 41st – 59th percentile (borderline)
- Attention – 19th to 28th percentile

Repeatable Battery for the Assessment of Neuropsychological Status (RBANS)
- Below 5th percentile on all 5 domains - Immediate memory, Visuospatial ability, Language, Attention, and Delayed memory

VaD: Neuroimaging findings

Axial proton density MRI showing white matter lesions and ratings
(A) Normal control (PVH score=0; WMH score=0)
(B) Patient with vascular dementia (PVH: frontal caps=2, occipital caps=2; WMH frontal=5, parietal=4)
VaD: Client profile

Target Figure on MMSE

MMSE Item: Write a sentence of your choice.

Client Attempt

Clock Drawing

VaD: Client Profile

Generative naming for ANIMALS

"I never think of animals. There's millions of animals and I can't think of one of them. Lion...tiger...cats...dogs. All the animal kingdom, wherever they are...lion, tiger, cats, dogs. Every animal on earth, because every animal is answered by that question."

Confrontation naming: 11/20 on the ABCD

Fluent sentence-level speech: Empty speech, ambiguous sentences, pauses, word-finding difficulty

Auditory comprehension: Commands + questions: 11/15 (ABCD)

Repetition: 39/75 (ABCD)

Discourse: Object description, Picture description, story recall (ABCD)

VaD: Picture Description

I see some cookies they're robbing in the jar. Some kids robbing the cookie jar. Some children gonna hurt themselves standing on a chair. The boy has... is that a boy or is that a girl? Oh... whatever... playing with danger standing on a chair reaching for... mama's doing the dishes... they should be doing the dishes. And they have a spill...a dirty spill there (points to water flowing over the sink)... it looks like she's gonna get her feet wet. I can't make out what this is (points outside the kitchen window in the picture) but it looks like a garden and outside hedge. As I said, she's doing her dishes.
Compared to persons with AD, those diagnosed with VaD are more likely to have:

- Abrupt onset and stepwise progression of deficits.
- Documented cardiovascular disease, HTN, or CVA.
- Evidence of subcortical dysfunction (gait disturbance, history of unsteadiness, history of frequent falls).
- Typically earlier onset of incontinence.
- Worse performance on attention, verbal fluency tasks and greater perseveration.

Frontotemporal Lobar Degeneration
or FTLD
Characteristics of FTLD

- FTDs account for about 10% of all persons with dementia.
- B/w 4 to 20% of PWD at memory disorder clinics are thought to have an FTD.
- FTD. Usually develops between ages 35-75 years. Have an
- Rapidly progressive; has a 2 to 10 year disease course.
- Strong genetic component; positive family history in 20-40% of cases.
- Hallmark symptom: Gradual, progressive decline in behavior and/or language.

Association for Frontotemporal Degeneration (AFTD)

Types of FTLD

Frontotemporal dementia
- Behavioral variant
- Language variants
  - Primary progressive aphasia (PPA)
- Motor variants
- Semantic Variant (fluent)
  - sv-PPA
- Nonfluent or agrammatic variant
  - nfv-PPA
- Logopenic
  - PPA
  - l-PPA

Association for Frontotemporal Degeneration (AFTD)
FTD: Symptoms vary by subtype

- Gradual changes in personality and social behavior
- Uninhibited, socially inappropriate behaviors
- Compulsive or repetitive behaviors (handwashing, pacing)
- Loss of concern about personal appearance/hygiene
- Inappropriate sexual behavior (hypersexuality)
- Increase in appetite (constant eating, wt gain)

Emotional symptoms
- Apathy, loss of drive, social withdrawal, lack of empathy

Language changes in PPA
- Loss of speech and language

FTD: Neuroimaging findings

FTD affects the frontal and anterior temporal lobes of the brain or “executive function” centers.

Seelaar et al (2010)
J Neurol Neurosurg Psychiatry

Figure 1 Imaging of frontotemporal dementia (FTD) subtype. (A) Frontal atrophy on axial fluid attenuated inversion recovery (FLAIR) of a patient with behavioral variant of FTD (bvFTD). (B) Axial T1-weighted image with FLAIR in a patient with semantic dementia (SD). (C) Coronal T1-weighted FLAIR image of a patient with progressive nonfluent aphasia (PNA) and left inferior frontal and superior temporal atrophy. (D) Axial T1-weighted FLAIR image in a patient with predominant left temporal lobe atrophy.
Logopenic PPA: Case Profile

ASHA’s Position on the Role of SLPs in Dementia Management

• That we “play a primary role in the screening, assessment, diagnosis, treatment, prevention and research of cognitive-communicative disorders in dementia and related conditions” and
• “a primary role in the screening, assessment, diagnosis, treatment, and research of swallowing disorders in dementia.”

ASHA (2005)

Understanding Disability
Medical Model: The person with the disability is perceived as the problem

Social Model: The person with the disability is not the problem; structures and systems in society are the problem

Wellness and Disability for persons with dementia

- World Health Organization's International Classification of Functioning (WHO, 2001)
- BASICS Biopsychosocial Model (Ronch, 1987; Vickers, 1974)
- Life Participation Approach to Aphasia (LPAA) (Kagan, Lyon, Elman, Bernstein-Ellis, Chapey, Simmons Mackie, 2000)
- Personhood (Crisp, 1999; Kitwood, 1997; Kitwood & Bredin, 1992)
For me, something pivotal happened before the ICF (2001) and LPAA (1999) models.
### BASICS Biopsychosocial Model

<table>
<thead>
<tr>
<th>Needs</th>
<th>Outcomes of addressing specific need</th>
</tr>
</thead>
<tbody>
<tr>
<td>B - Biological</td>
<td>Sense of strength/security/safety</td>
</tr>
<tr>
<td>A - ADLs</td>
<td>Sense of independence and control over immediate environment</td>
</tr>
<tr>
<td>S - Societal</td>
<td>Sense of unique identity and self-worth</td>
</tr>
<tr>
<td>I - Interpersonal</td>
<td>Opportunity for social role expression and confidence; to be cared for and to care for others</td>
</tr>
<tr>
<td>C - Creative</td>
<td>Use of spared abilities; supports independent activities that provide stimulation.</td>
</tr>
<tr>
<td>S - Symbolic</td>
<td>Sense of hope, self-actualization, and self-fulfillment despite loss of self given dementia</td>
</tr>
</tbody>
</table>

Mahendra & Arkin, 2003; Ronch, 1987; Vickers, 1974
Personhood
Crisp, 1999; Kitwood, 1997
Kitwood & Bredin, 1992

• Personhood counters the tendency to associate loss of cognitive ability with the loss of being human.

• What makes us human is not just cognitive dimension of functioning, but also our imaginative, social, expressive dimensions of being.

• Barich (1998): 'You become a person when you enter into relation with other people'.

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4 principles of person-centered care

Logotherapy
Viktor Frankl

Raison d’être

Ikigai

Life Participation

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Point: Historic focus on impaired abilities in PwD

- Therapeutic nihilism (Clark, 1995).
- Exclusive focus on progressive nature of dementia.
- Insufficient emphasis on variation in disease trajectory, and function by stage of severity.
- Rudimentary understanding of human memory systems.
- Research on dementia management - heavily biased towards drug discovery.
- Reimbursement challenges (esp. in the U.S.)

Counterpoint

- Dementia is a global epidemic.
- Distinct dementias with specific patterns of progressions.
- Sophisticated understanding of human memory systems, neuroplasticity, and QoL with progressive disease.
- Burgeoning evidence for spared abilities in dementia – leading to more nuanced assessment of PWDs' potential and response to intervention.
- Growing research and evidence-base for efficacy of several direct interventions.
Person-Centered Assessment

Memory Model
(Bayles & Tomoeda, 2015; Mahendra & Hopper, 2017; Squire & Zola-Morgan, 1991)

Levels of Outcome Measurement
World Health Organization
Skilled assessment in dementia is informed by:

- Client's setting
- Evidence base
- *spared and impaired*
- Dynamic assessment protocols (e.g., test-teach-retest)

Bayles & Kim (2003); Hickey & Bourgeois (2018); Hopper, Bayles, & Kim (2001); Mahendra & Hopper (2017)

Opportunities in Assessment

- Quantify severity of cognitive and communicative function.
- Document spared and impaired abilities
  
  - Use varied assessment tools (e.g., standardized tests, observation, interview, scales)
  
  - Consider strengths and limitations of standardized tests when testing diverse OA (e.g., use age- and education-corrected norms).

Opportunities in Dynamic Assessment

Assessing beyond free recall of stimuli: Cued recall, recognition, and familiarity assessment.

Presenting stimuli/instructions in different modalities. (Mahendra, Bayles, & Harris, 2005; Mahendra, Engineer, & Carol 2009)

Demonstrate client ability to benefit from skilled tx.

Bourgeois, 2007; Centers for Medicare and Medicaid Services, 2001; Hickey & Bourgeois, 2018; Mahendra & Hopper, 2017; Tomoeda, 2001
Suggested Areas for Screening

Medical history
Self or CG report of memory problems

Hearing and Vision impairments
Depression

Polypharmacy

Screening & Assessment: Standardized Tests

SCREENING
Age- and education-corrected MMSE (Crum et al., 1993; MMSE-2, MMSE-EV)
Montreal Cognitive Test (MoCA; Nasreddine et al., 2005)
VA St. Louis University Medical School Examination (SLUMS)

ASSESSMENT
Dementia Rating Scale-2 ( Mattis et al., 1991)
Repeatable Battery for the Assessment of Neuropsychological Status (RBANS; Randolph et al., 1998)
Cognitive Linguistic Quick Test (CLQT; Heml-Estabrooks, 2001)
Arizona Battery for Communication Disorders of Dementia (ABCD-2 Bayles & Tomaeda, 2019)

BEYOND THE OBVIOUS
**Standardized Assessments – Gone Functional**

- **Rating Scales**
  - ADLs and IADLs
  - Functional Communication
  - Problem Behaviors
  - Structured Observation
  - Behavior Logs (frequency of behaviors)

- **Discourse Measures**
  - Picture Description
  - Object Description
  - Concept Definition
  - Conversational Prompt

**My Children**

I have 2 daughters: Sandra and Denise

Bourgeois, 2007; Hickey & Bourgeois, 2018; Brush et al., 2012

**Incorporate AAC**

- www.talkingmats.com
- Scene and Heard app
- Talking Photo Albums

**Incorporate AAC**

- Grey Matters app
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Types of Interventions for Persons With Dementia

Direct Interventions
1. Environmental modifications
2. Caregiver training

Indirect Interventions

Client
CG

Yet...

Use knowledge and skills to determine:

• Which client is a candidate for direct vs. indirect interventions?
• What outcome measures reflect the new learning that a PWD can demonstrate?
• What does it take for an SLP to become skilled at implementing dementia interventions?

Principles for Successful Intervention

1. Strengthen memory traces with repetition. 
   Use it or lose it Use it and improve it
2. Use spared abilities and actively engage the non-declarative memory system during learning.
3. Reduce errors during learning.
4. Design interventions so patients focus attention on a single task.
5. Use salient cues and tangible sensory stimuli to aid recall.
6. Return access to the pleasure of creative arts.

Mahendra, N. (2001); Bayles & Tomoeda (2007); Mahendra & Apple (2007); Kleim and Jones (2008), Mahendra (2011); Hopper et al. (2013)
Target wellness for PWD in our clinical interventions by:

- Emphasize personhood and the need to feel needed
- Allow autonomy and creative expression
- Provide meaningful, stimulating activities – physical, cognitive, and social

Intervention 1:
Spaced Retrieval Training (SRT)

- Memory shaping procedure that refers to successfully practicing recall of information or a strategy/procedure over progressively longer intervals of time.
- Clinician asks a question and requires an immediate response (verbal or motor) from the client.
- Interval between recall opportunities is lengthened over time until the client demonstrates recall of information for clinically significant amounts of time.

Brush & Camp (1998); Hopper, Mahendra, et al. (2005); Hopper et al. (2013)

SRT: A shaping paradigm
Training successful recall over gradually increasing time intervals

Brush & Camp (1998b); Cherry, Simmons, & Camp (1999); Mahendra, 2011; Hopper et al., 2013; Mahendra, Scuffion, & Hamerschlag, 2011; Vance & Farr (2007)
SRT Examples

1. Fall Prevention/Safe Mobility
   Clinician: “Before you stand I would like you to lock your wheelchair like this. What should you do before you stand?”
   Client: “I should lock my chair.”

2. Safe swallow strategy
   Clinician: “Before you swallow water, I would like you to tuck your chin like this. What should you do before you swallow water?”
   Client: “Tuck my chin.”

   Brush & Camp, 1998b; Brush, 2003; Cherry, Simmons, & Camp, 1999; Hopper, Mahendra et al., 2005; Lee et al., 2009; Hopper et al. 2010; Mahendra, 2011

Types of information that can be trained

• Compensatory strategies
  – Using a calendar or schedule
  – Learning a safety strategy (e.g., a transfer technique) or a safe swallow strategy (Brush & Camp, 1998; Mahendra & Tomoeda, 2009)
  – Describing an object (Abraham & Camp, 1993)

• Meaningful information
  – Room number
  – Address
  – Face-name associations (Hawley & Cherry, 2004; Mahendra, Apple, & Reed, 2008; Hopper et al., 2010)

Promoting carryover

• Schedule SR tasks within existing program activity periods or therapy sessions.
• Always end session with a successful response.
• Teach CG, volunteers, visiting family members to implement SRT.
• Critical for everyone to be CONSISTENT – use the same cue, accept the same response.
• Helps to record short demo clips for professional and personal CGs.
Modifications to Traditional SRT
Mahendra, 2011

- Using computer-assisted video-enhanced SRT

- Laptop/smart phone and video clips of procedure
- Errorless instruction
- SRT as learning modality
- Clinician assistance

Intervention 2: Memory books/wallets

- One of the best validated strategies for maximizing verbal communication and retention of personal biographical information
- Positive treatment outcomes when used by clinicians as well as personal and professional caregivers
- Use of memory aids is associated with:
  - Improved recall of personal biographical information
  - Independent initiation of conversation
  - Improved recall of compensatory techniques
  - Reduced frequency of undesirable behaviors
  - Better communication between professional CGs and PWD
  - Bourgeois, 1990; Bourgeois & Mason, 1996; Johnson, 1997

Why do memory aids work for PWD??

- Emphasize tangible sensory stimuli that reduce reliance on episodic memory
- Use personally relevant and meaningful stimuli
- Offer ability to control the type and amount of information
- Allow format flexibility – a 8 ½ x 11 book, a small wallet, a photo album, a digital photobook
- Make using a memory aid a ‘routine procedure’ and nested within everyday tasks
Memory book stimuli

My Children
I have two daughters – Sandra and Denise.

My Home
I live in San Jose, California
My address is 110 Parkmeadow Drive.
I’ve lived here for 20 years.

Some pointers for creating and using memory books

• Have a clear therapeutic goal for using a memory book (e.g., initiate verbal communication about activity choices, to retain safe swallow strategies).
• For high functioning PWD, designing a memory book can be a collaborative and creative process.
• Consider using a digital camera, desktop publishing software, Boardmaker or PicCollage for making memory aids.
• Use keychain wallets that can be attached to a belt loop, walker, purse, etc.

Intervention 3: Reading Roundtable

• Montessori-based group activity, aimed at increasing positive engagement and verbal discussion
• Preceded by development of Question Asking Reading (QAR)
• Structured reading and discussion activity that uses specifically developed stories, designed and adapted with ease of communicative access in mind for PWD
• Stories have a supportive sensory format (e.g., large font, high-contrast, durable book covers) and layout (e.g., single-sided printing), interesting facts, and accompanying cues/questions
Why does Reading Roundtable work for PWD?

- Primes information using structured repetition
- Supports retrieval of learned information
- Positively engages residents (e.g., in selection of story or text topics) and
- Emphasizes group procedure and learning-by-doing of taking turns to read and answer questions
- Utilizes relatively spared oral reading skills
- Fosters reminiscence

Intervention 4: Music-based Intervention

- Philosophers called music the *quickening art*.
- “If you’re out of it, music awakens you and brings you back into it*.”
  Oliver Sacks: *Musicophilia*
- Music-based interventions fulfill *social, interpersonal, creative, and symbolic* needs of PWD.
Music-based Interventions

- PWD require access to pleasant, stimulating activities, if we want to reduce negative behaviors.
- PWD need to be actively engaged, stimulated, and to be creative.
- Music improves communication, mood, socialization, and recall of biographical memories.
- Singing and performing can empower PWD by making them feel productive, and allowing them to use skills they have.

Intervention Principles

- Incorporate structured repetition, rehearsal, consistent session format.
- Establish routines and invoke procedural memory.
- Use supported conversation and multimodal cueing.
- Organize sessions into conceptual themes; engage residual semantic memory via reminiscence.
- Track varied outcomes; include staff- and resident-reported social validation.
- Encourage group autonomy in song/theme selection; allow group identity to develop.
- Train staff actively; provide supports; remove barriers to implementing intervention.

Social Validation Outcomes:
Narrative voice of PWD

“Doing this was like getting out of the dungeon and into the clouds”.
Teaching Future Providers about Dementia: The Impact of Service Learning

“Half-way there”
Bon Jovi

- Questions?
- Thank you WMU!

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