

# AAC Strategies and Tools for Persons With Dementia

by Michelle Bourgeois, Melanie Fried-Oken, and Charity Rowland

**T**he basic goal of augmentative and alternative communication (AAC) is to help persons with communication impairments increase their participation in desired activities and create opportunities for social interaction through various modes of communication. AAC, especially high-tech computer-based and speech-generating devices, is most often used by individuals with severe oral-motor or expressive language impairments and is rarely considered for persons with dementia who continue to speak well into the late stages of their disease.

Speech-language pathologists, however, have been using various forms of AAC to support communication participation of persons with dementia. Many non-electronic or low-tech communication approaches have been used successfully to support social interaction of persons with dementia. AAC, in the form of external aids that incorporate stimuli highly relevant to a person's daily life, may include memory wallets, notebooks, calendars, signs, color codes, timers, communication boards, labels, and other tangible visible symbols that provide cues for interaction. Persons with dementia use AAC successfully, and SLPs may want to demonstrate to patients and caregivers the effectiveness of these tools.

## Indicators of Dementia

The diagnostic indicators of dementia are memory impairment and changes in other cognitive domains (language, abstract thinking, judgment, and executive function) that are sufficiently severe to cause

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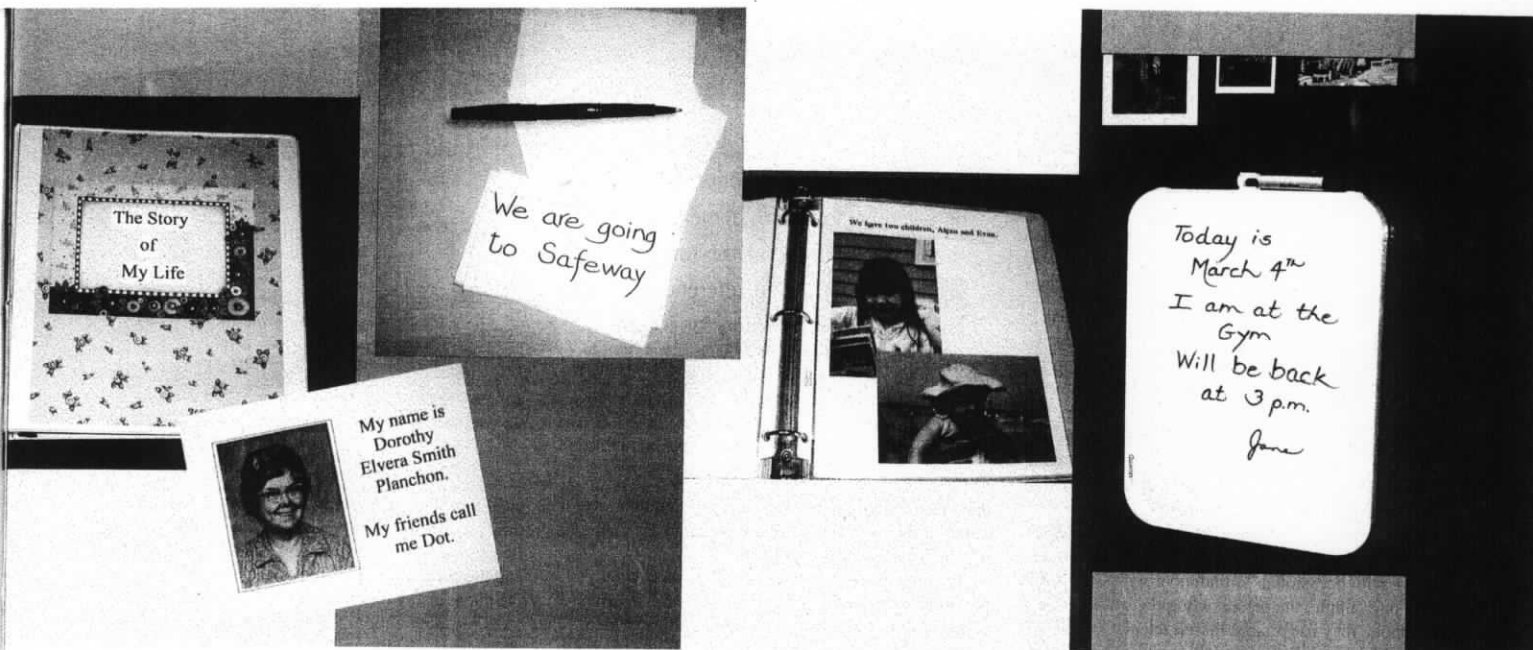
impairment in social and occupational functioning (DSM-IV; American Psychiatric Association, 2000). The first symptoms of dementia are typically word-finding problems, comprehension deficits for abstract and complex conversation, and short-term memory problems that often interfere with conversational interactions.

As the disease progresses, these memory deficits intensify and create related problems such as repetitive questions and limited verbal output, characterized as "empty speech." Over time spoken output is further eroded to echolalic, perseverative, and paraphasic speech, then to incoherent vocalizations, and finally to mutism (Bourgeois & Hickey, 2007; 2009). Areas of preserved ability—such as reading, writing, and pragmatic skills—that remain functional until the later stages of the disease can be recruited when planning therapeutic activities. Also, various memory processes that remain relatively intact until later stages can be harnessed for maintaining desired behaviors. For example, some forms of long-term memory (e.g., procedural, non-declarative, and episodic) and sensory memory have supported functional behaviors, such as conversation (Bourgeois et al., 1997; see Table 1).

## Strategies and Tools

Two of the earliest examples of AAC tools targeting language expression and comprehension/memory support for persons with middle-stage dementia are memory wallets and books (Bourgeois, 1992). These visual cueing systems consisted of 10–30 pages, with each page featuring one declarative sentence and one picture illustration, that were used by clients to increase the number of factual statements made in conversations. Families provided pictures and anecdotes to include in the personalized albums; nursing assistants and activity personnel generated facts about daily living in the nursing home that could be used to resolve confusions and increase cooperation during care activities (Bourgeois et al., 2001).

SLPs who designed memory books realized that the visual and physical characteristics of the aid could be modified to maintain function when the size of the print becomes difficult to read, the complexity and length of the sentences causes reading errors, or the book becomes too cumbersome to carry. Increasing the font size and reducing the amount of text can keep a memory book functional. Similarly, memory books that are portable or wearable can be used in a variety



of locations. Clinicians also have discovered that a variety of memory-related problem behaviors can be mediated with visual cues in the form of text-based cue cards, messages on memo boards, and behavior-tailored memory book pages. For example, caregivers' use of personalized visual/written cues reduced repetitive question-asking by people with dementia (Bourgeois et al., 1997).

Low-tech devices also are used to support memory and conversation for persons with dementia. Yasuda and colleagues (2009) have reported success in reducing behavioral disturbances in persons with dementia by using personalized reminiscence photo videos (personal photos with narration and background music) and video phone technology. Cohen (2000) developed video "biographies" and Lund and colleagues (1995) developed generic video "respite" programs on topics of general interest (e.g., school days, holidays, garden-

ing) with similar effects. Talking photo albums have become popular gifts for seniors with and without memory challenges. As the proficient computer- and technology-users get older, there will be an increase in the use and modification of computers, cell phones, PDAs, and other electronic devices to support memory (Gentry et al., 2008).

### Adding Digital Voice Output

The AAC tools described so far for one-on-one interaction require a user or partner to read text or recognize pictures. Fried-Oken and Rowland (2008) explored the added value of including preprogrammed voice output. They asked whether adding one- to two-word spoken output to pictures and text would enhance language use and conversation. The spoken label may provide the user with a "cognitive access method" in which the verbal cue actually stimulates

enriched lexical retrieval (Fried-Oken et al., 2000). They conducted a study in which a customized communication board containing 16 personal pictures with digitized one- to two-word voice output was provided to 30 individuals with moderate Alzheimer's disease (AD). Every time a person with dementia touched a picture, its label was spoken out loud. Ten-minute conversations with speaking boards and with silent boards were compared.

Results clearly demonstrated that AAC devices with digitized voice output depressed conversational performance and distracted participants with moderate AD as compared to similar devices without voice output. It could be argued that the very presence of voice output produces perceptual and attention problems that interfere with the use of an external device for conversation. For a number of participants, the novelty of the voice output caused them to stop conversing and to produce a perseverative behavior of pressing a symbol repeatedly. Some clients who could verbally embellish a point found that the spoken cue interfered with conversation, causing them to forget their purpose or drop the line of thought.

Voice output as a form of augmented input for language comprehension and memory support during activities of daily living may be another use of digitized speech. Digital reminders for washing hands, brushing teeth, and taking medication are available for persons with dementia to help them maintain levels of independence (Mihailidis, Boger, Craig, & Hoey, 2008).

**Table 1. Types of Memory**

I. Sensory Memory	Involves attention, alertness, arousal processes; visual, auditory, tactile, taste, olfactory stimuli, unconscious awareness
II. Working Memory	Involves encoding processes, temporary storage of limited capacity
III. Long-Term Memory	Involves retrieval processes, permanent storage of unlimited capacity
A. Declarative (Explicit)	Person's knowledge base, conscious awareness
1. Semantic	Knowledge of the world, facts, ideas
2. Episodic	Knowledge of personal experience (autobiographical)
B. Nondeclarative (Implicit)	Person's knowledge of skills and action patterns, unconscious awareness
1. Procedural	Sequenced motor tasks and perceptual tasks

*Note:* Adapted from Baddeley (1999), Sander et al. (2007), and Sohlberg and Mateer (2001).

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## Past Experience and New Learning

Success is more likely if the individual's own strategy ideas are used, and if the strategies capitalize on previous experiences and cognitive strengths (Bourgeois, 2002). In the early stages of dementia, common technology can be used as memory supports. For example, a cell phone can be a valuable memory support: the telephone directory can be programmed to dial familiar numbers when the written name appears on the screen, the calendar can be used to keep track of appointments, and the phone can be programmed to signal when medications need to be taken.

If any of these strategies is implemented during an earlier stage of memory loss, it should continue to be effective with occasional reminders or with modifications. For example, the person who previously used a cell phone may use a large-button telephone with memory dial capability and a cue card for the steps to dial. The person who agreed to consult the family calendar every morning after breakfast is more likely to continue to depend on the calendar for information about the date and the day's activities than the person who simply glances at the calendar from afar whenever he or she thinks to do it. It is important to remember, however, that simply providing visual cues and enhancements may not be sufficient for establishing improved participation and engagement. The person

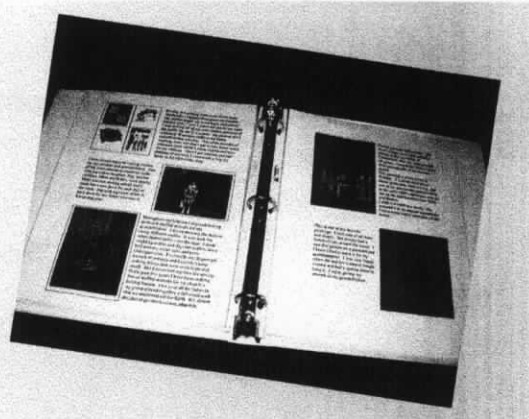
One value of AAC for conversation between persons with dementia and their caregivers is that the tools offer visual and literal joint reference to create common meaning for social interaction.

may need training to use the cuing system to a level of criterion that will maximize the potential for maintaining the behavior after treatment.

In some cases, caregivers need instruction on providing appropriate prompts to maintain an effective cuing system. Caregivers also should know to alert the clinician or physician when an improved behavior begins to decline, signaling the need for a modification of the cuing system.

## Caregivers' Role

Caregivers are crucial partners for the success of AAC intervention, both for providing accurate information about a person's past and for engineering the current environment for successful AAC implementation. Supporting someone's communication through



cueing or tools is not intuitive, however. Caregivers may require specific training to learn positive interaction styles and cuing strategies. The place of residence and the level of familiarity between the caregiver and the client also will affect the types of strategies and tools for intervention. For example, in the early stages of dementia, family members and caregivers need to learn how to support conversation at home without challenging the person to remember specific words or events, such as discussing the events of the day by reviewing listed appointments and notes on a daily planner or calendar. They may benefit from learning how to redirect the topic of conversation and how to use cues to help the person access information while maintaining a sense of dignity and self-respect.

As individuals lose awareness of their cognitive and communication difficulties, caregivers may need to learn how to facilitate communication interactions that maintain social closeness without expecting equitable participation. For example, caregivers can name and describe a photo of a recent family event (e.g., graduation or birthday party) as a focus of interaction. Finally, in the end stages, professional caregivers may benefit from direct instruction in the use of tone of voice, familiar objects, the environment, and touch to provide comfort and to maintain quality interactions. Humming a lullaby and dimming the lights while assisting the person to undress and get ready for bed may provide cues to memories of familiar bedtime routines.

One value of AAC for conversation between persons with dementia and their caregivers is that the tools offer visual and literal joint reference to create common meaning for social interaction. Whether the referents are orthographic (as in large block letters for single words written on cue cards), or videos of family events that can be used for reminiscence, or communication books that contain pictures and words to help with daily routines, these visual tools create common cues to support communication and recognition between client and caregiver.

## AAC and Functional Goals

In the standard AAC evaluation, a clinician assesses the communication environment and identifies barriers and facilitators that interact with a client's communication needs and abilities (Beukelman &

# Coding and Documenting Services for Dementia

by Janet Brown and Mark Kander

**M**edicare covers reasonable and necessary speech-language pathology services to individuals with dementia. The following tips can guide you in coding and documenting dementia evaluation and treatment.

If you receive a denial from a Medicare Administrative Contractor (MAC) that is based solely on the patient's diagnosis of dementia, you can appeal by citing the Medicare Transmittal AB-01-135 ([www.cms.hhs.gov/Transmittals/downloads/AB-01-135.pdf](http://www.cms.hhs.gov/Transmittals/downloads/AB-01-135.pdf)), which expressly forbids such denial.

To ensure reimbursement, goals and progress notes should reflect how speech-language treatment helps the patient to be more functional. For example, using AAC strategies may help the patient increase functional communication

or participation in daily living activities, or decrease agitation.

If you implement AAC strategies described in the accompanying article, be aware that Medicare makes a distinction between speech-generating devices (SGDs) and non-speech generating devices (see Medicare's SGD coverage policy at [www.asha.org/practice/reimbursement/medicare/sgd\\_policy.htm](http://www.asha.org/practice/reimbursement/medicare/sgd_policy.htm)). If your AAC strategy is not an SGD according to Medicare's definition, you should use the billing code 92506 (SLP evaluation) or 92507 (SLP treatment).

## ASHA Resources on Dementia

**Medicare Benefit Policy Manual** ([www.cms.hhs.gov/manuals/downloads/bp102c15.pdf](http://www.cms.hhs.gov/manuals/downloads/bp102c15.pdf))—This

manual includes a description of reasonable and necessary services in Section 220.2.B, and development of a maintenance plan in Section 220.2.D.

**ASHA's policy documents** (including position statement and technical report on the roles of speech-language pathologists working with individuals with dementia-based communication disorders) and other resources are available at [www.asha.org/slp/clinical/dementia](http://www.asha.org/slp/clinical/dementia).

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Mirenda, 2005). This broad view of communication is compatible with functional communication intervention for the individual with dementia. SLPs can write communication goals that measure improvement in participation of daily events and supported interaction when AAC is used. Language goals can be written to increase expression through various modalities and range of cues such as auditory/verbal cues, written cues, pictures, symbols, or gestures. The client may be expected to respond with speech or by pointing to a picture, word, or symbol; by drawing; or even by writing a letter in the air.

For example, instead of stating that a client will produce responses to questions in eight of 10 instances, the goal might state: "The client will point to the correct written reminder card in response to questions in eight out of 10 instances." Instead of expecting the client to recall personal information when presented with minimal verbal cues, the SLP might expect the client to read aloud personal information and point to the correct photograph when presented with a memory book with sentence-length captions.

### Future Trends

Imagine a communication device that learns a person's lexicon as the person experiences word-finding problems, synthesizes the user's voice instantaneously

with no special input needed, and intuitively presents information in the cognitive style that has been an individual's strength as an adult. Imagine that as the user's environment and partners change, the communication aid assesses the new challenges and adapts successfully to support the user's declining cognitive-communication skills.

We are entering a decade in which supports for people who are aging and intervention for people with dementia will change dramatically. Medical technologies will affect our understanding and management of dementia and communication; pharmaceuticals will address cognition in ways that are not even predictable. As technology use becomes part of the lives of people of all ages and ability levels, the options for AAC tools and strategies will become dramatically more sophisticated, yet simpler. Cell phones, smart cars and smart homes, robots, prediction search engines (e.g., Bing), and technologies yet to be invented will need to be part of our clinical toolkit. As SLPs, we will be more comfortable using technological options for our own purposes and for intervention. Our clients will be expert users who expect technological support for communication and cognitive tasks.

Additionally, universal design will be the rule rather than a luxury by the end of this decade. This concept refers to the design of products and environments to be usable by all people to the greatest extent possible, without the need for adaptation or specialized design (Preiser & Ostroff, 2001). Its principles include equitable use for people with diverse abilities, simple and intuitive use for people with a wide range of cognitive and literacy skills, low physical effort for sustainable use, and tolerance of error for safety. Universal design principles will cause a paradigm shift in development and use of all tools, including those for AAC, and in the manner in which SLPs integrate these strategies and tools into our practices.

As expert clinicians, our tools will change and we will gain new understanding of dementia and the

value of AAC for intervention. But our goals always will remain the assessment and management of human communication and the social exchange of information by individuals with speech, language, and cognitive impairments and their partners.



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