

Upfront



Small groups of people, focused on a clear objective, can make a difference. In the fall of 1999, I reported on the (ultimately successful) effort by a working group of AAC professionals to convince Medicare, the largest health care program in the United States, to retreat from its decade-old policy of considering AAC devices merely as "convenience items," which were not eligible for funding.¹ On January 1, 2001 Medicare finally agreed that AAC devices are "durable medical equipment," named them Speech Generating Devices, or SGDs, and agreed to fund them.

Now, as a secondary, but perhaps equally important product of Medicare's momentous decision to fund AAC devices, we are witnessing a sea change in the way in which speech-language pathologists (SLPs) in the United States must report the process of assessing an individual's need for an SGD (*i.e.*, AAC device). Medicare has decreed a new assessment protocol, which inevitably is becoming the *de facto* standard for AAC device assessment reports by other public and private insurers, as well.

Once again, a small group of AAC advocates, clinicians, educators, consumers, family members and researchers (contributing countless volunteer hours) worked together to develop an assessment protocol that was reviewed by 13 professional/consumer organizations

(including the ALSA, AMA, ANA, ASHA, ISAAC, UCPA and USSAAC) and was then adopted by Medicare with no substantial changes. Other AAC device funders also are adopting the protocol.

This series of events, while imposing a necessarily greater degree of uniformity on the AAC assessment process in the United States, has produced a validated and useful protocol that may very well provide SLPs in other countries and those who work with other populations with useful guidance.

Most of this newsletter describes aspects of the new SGD protocol. **Clinical News** describes the mandated Medicare assessment process. **Governmental** summarizes the Medicare funding process; and

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AAC-RERC

*State of the Science Conference on
Communication Enhancement*

Clinical News



Assessment protocol for SGDs

Medicare has renamed AAC devices *Speech Generating Devices* (SGDs), agreed to fund them and given the responsibility for recommending SGDs to ASHA certified speech-language pathologists (SLPs).

SLPs rely on multi-faceted approaches to the SGD assessment process. Their strategies often include a review of medical records; interviews with the individual, caregivers and others; structured

observations; formal assessments and equipment trials. Through a series of clinical decisions, SLPs

ultimately make specific recommendations for an SGD and accessories. This process has not changed. However, Medicare funding requires a standardized report which covers specific areas, as discussed below.

1. Demographics. SLPs collect and report basic information about the beneficiary:

- Beneficiary's name, Medicare number, Date of birth, Primary medical diagnosis, Date of onset of disease/condition, Communication diagnoses.

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[Note: ICD-9 codes for both medical and communication diagnoses are included.^{2]}

- Date(s) of SLP's assessment.
- Contact information for the: Beneficiary (address, phone number); Physician (name, address, phone number, provider number); SLP (name, address, phone number; license number); Primary support person (name, address, phone number).

2. Current communication impairment. SLPs assess the type and severity of the individual's speech/expressive communication impairment and the expected course of the disease/condition.

a. Impairment type and severity. SLPs describe the person's speech impairment as:

- Dysarthria (often includes current speaking rate and intelligibility measures)
- Aphasia (often includes scores on receptive and expressive aphasia tests over time)
- Dyspraxia/apraxia (often focuses on

motor planning/execution scores on apraxia tests over time)

- Aphonia – Delineates the reasons for the person's inability to produce voice naturally or to use a speech prosthesis (e.g., speaking valve, electrolarynx). [Note: In order to qualify for an SGD, aphonia must be due to a physical disability.]

b. Anticipated course of impairment. SLPs determine whether the speech impairment is likely to improve, deteriorate or remain stable over time. Table I illustrates Staging Scales that can help document the course of the speech impairment. Figure 1 gives three examples of statements written about *current status* and *expected course*.

3. Comprehensive assessment. SLPs describe the person's sensory, motor, language and cognitive status and how these factors will likely influence the person's use of an SGD. This information often can be obtained from the existing medical record and confirmed through the assessment process. SLPs with the most experience find few standard-

Figure 1. Examples of current status and expected course statements

1. Mr. X has a severe dysarthria due to cerebral palsy. The condition is stable and speech intelligibility is not expected to improve.
2. Mrs. B has severe dysarthria due to amyotrophic lateral sclerosis (ALS-Stage 3). Currently speech rate is 100 wpm (half of normal), indicating that speech intelligibility will deteriorate at a rapid rate. She will require the use of an SGD throughout the course of this disease (ALS-Stages 4 and 5).
3. Mr. P has moderate receptive aphasia and severe apraxia. The condition is now chronic and stable. Speech intelligibility is not expected to improve.

ized tests useful in determining how effectively a person will use an SGD and SGD accessories.

a. Hearing status. SLPs review the existing record and inquire about the person's hearing status. Consideration is given to:

- hearing acuity (along a continuum from normal hearing to deafness);
- any specifics regarding localization, understanding of natural speech or machine-generated speech;
- hearing status of primary communication partners, if relevant.

If an SGD is being recommended, the SLP reports, "[The person] possesses the hearing abilities to communicate effectively using an SGD."

b. Vision status. SLPs review the existing record and observe the person's visual abilities. The following parameters are considered:

- visual status (along a continuum from normal vision to blindness);
- any relevant information about acuity, visual tracking, visual fields, lighting needs, angle of view, size of symbols, contrast (color, detail) and spacing.

If an SGD is being recommended, the SLP reports, "[The person] possesses the visual abilities to communicate effectively using an SGD," or explains why someone without functional vision may require an SGD.

c. Physical status. SLPs provide information about the person's motor skills and physical ability to use an SGD and accessories by describing:

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Equipment provides information about AAC device categories, Medicare codes, pricing and reimbursement. To illuminate the Medicare assessment process, this issue presents three **Case Examples**. These cases are being presented by their authors in New Orleans at the ASHA Convention in November, 2001. Finally, **AAC-RERC** reports on the State of the Science Conference in AAC and highlights the AAC-RERC website, which has valuable, up-to-date information on Medicare and the assessment protocol. Many thanks to those who contributed to this issue. They are listed on page 16.

14 years and beyond

This year begins my 14th year as author of *Augmentative Communication News*. Time sure flies when you are having fun. I wish to announce that ACN is now officially a quarterly publication. Issues in each volume will vary from 8 to 16 pages. Everything else will remain the same (except we will all keep getting older.)

Sarah W. Blackstone, Ph.D.,
CCC-SLP,
Author



Table 1. Examples of Staging Scales for assessing individuals with severe speech impairments

Yorkston, K., Beukelman, D., Strand, E., & Bell, K. (1999). *Clinical Management of Motor Speech Disorders in Children and Adults*. Austin, TX: Pro-Ed

Disabling Conditions	Staging Scales	Disabling Conditions	Staging Scales
Severe dysarthria: Amyotrophic Lateral Sclerosis	Stage 1: No detectable speech disorder Stage 2: Obvious speech disorder, intelligible Stage 3: Reduction in speech intelligibility Stage 4: Natural speech supplemented with SGDs Stage 5: No useful speech (SGD only)	Aphonia: Oral/trach ventilator dependence	Stage 1. No useful speech Stage 2. Reestablish subsystem control for speech Stage 3. SGD supplement of natural speech Stage 4. Maximize natural speech efficiency/ effectiveness Stage 5. No detectable speech disorder
Severe dysarthria: Brainstem CVA	Stage 1. No useful speech Stage 2. Reestablish subsystem control for speech Stage 3. Independent use of natural speech Stage 4. Maximize speech naturalness/efficiency Stage 5. No detectable speech disorder	Severe dysarthria: Guillain-Barré Syndrome	Stage 1. Deterioration phase Stage 2. Loss of speech Stage 3. Prolonged speechlessness Stage 4. Spontaneous recovery of speech Stage 5. Long-term residual motor-speech disorder

- pertinent considerations regarding motor skills, ambulatory status, wheelchair seating, positioning and mobility, endurance levels and fatigue;
- how the person will access an SGD (e.g., direct selection, scanning);
- specifics related to switch access, mouse control, other accessories and mounting systems;
- whether changes in physical access are likely to occur over time and will require accommodations.

SLPs often consult with occupational therapists (OTs), physical therapists (PTs) and rehabilitation engineers to determine motoric requirements for SGD use.

If an SGD is being recommended, the SLP reports, "[The person] possesses the physical abilities to use an SGD."

d. Language status. SLPs determine the person's language and literacy skills as they relate to using an SGD and accessories. The report documents the person's language status using the following parameters:

- level of linguistic impairment (no impairment to severe language impairment);
- performance on any language test (e.g., Boston Diagnostic Aphasia Examination-BDAE; Western Aphasia Battery-WAB; picture description);^{3,4}
- type and level of symbolization the individual can use to communicate;
- level of literacy skills (ability to read, write, spell);
- level of independence in formulating messages using symbols, words, spelling;

- whether changes in linguistic skills are likely to occur over time.

If an SGD is being recommended, the SLP reports specifics about language skills and how they affect the individual's ability to use an SGD and SGD accessories effectively to achieve functional communication goals.

e. Cognitive status. The SLP's assessment provides information about the person's cognitive skills and abilities as they relate to the need for and use of a SGD and may include:

- level of cognitive impairment (no impairment to significant cognitive impairment);
- functional attention, memory and problem-solving skills.

Figure 2 is an example of a statement regarding cognitive status.

Figure 2. Example of cognitive status statement

Mr. S's attention, memory and non-verbal problem-solving skills are within functional limits. He sustained attention for a two-hour evaluation and recalled symbol locations and device operations after brief instruction. He used an SGD to initiate interactions and engage in conversation.

If an SGD is being recommended, the SLP reports, "[The person] possesses the cognitive/ linguistic abilities to effectively use an SGD to achieve functional communication goals."

4. Daily communication needs. SLPs document the individual's daily communication needs and indicate whether those needs can be met using speech, signs, writing and/or low-tech communication aids.

a. Specific daily functional communication needs. In assessing communication needs, SLPs and

other team members take into account daily situations, environments, partners and specific messages. Figure 3 gives examples that document communication needs.

Figure 3. Examples of communication needs

- Communicate in emergency situations.
- Direct the behavior of caregivers.
- Advocate for self.
- Communicate with family, friends, employers, community personnel, medical personnel or clergy using the phone.
- Participate in family decision-making.
- Communicate while participating in activities related to employment.
- Attend and participate in support groups or day treatment activities.
- Report medical status and complaints. Ask questions of medical providers and respond to medical provider's questions.
- Discuss choices for end-of-life care.

b. Ability to meet communication needs with non-SGD treatment approaches. SLPs assess whether a beneficiary is able to fulfill his or her daily communication needs using natural speech or speech aids, e.g., amplifier, valve, etc.) and other non-SGD approaches. SLPs also consider why an SGD may be required in addition to, or instead of, low-tech strategies and natural speech. The report indicates:

- the types of non-SGD treatments that were considered (e.g., speech therapy, voice amplifier) and ruled out.
- the person's ability to use low-tech strategies and natural modes of

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communication to meet daily communication needs.

- issues related to communicating with primary partners and caregivers in specific contexts.

If an SGD is being recommended, the SLP reports, “[The person’s] daily communication needs cannot be met using natural communication methods or low-tech/no-tech AAC techniques because of _____ (be specific).”

5. Functional communication goals. An important component of the assessment process is establishing functional treatment goals. Medicare guidance states that functional goals for SLP treatment should be designed to achieve “optimum communication independence.” SLPs develop functional goals with the individual and family. Figure 4 lists examples of functional communication goals.

Figure 4. Examples of functional communication goals

- Within one week of receiving it, Mr. B will independently communicate physical needs and emotional status to his wife on a daily basis with 100% accuracy, using the recommended SGD.
- Within 2 months, Ms. A will accurately and independently describe her physical symptoms and ask questions when interacting with her physician and other health care professionals with 80% accuracy, using the recommended SGD.
- Mrs. X will independently engage in social exchanges on the telephone with immediate family (1 month) and extended family members (2 months), using the recommended SGD at least twice daily.
- Within 4 months, Mr. Y will independently engage in face-to-face communication exchanges with friends at home and in other settings, using the recommended SGD.
- Within 6 months, Mrs. O will independently ask questions and provide responses in community-based transactions (e.g., order in a restaurant) using the SGD.

If an SGD is being recommended, the SGD funding request should list immediate, short and long-term functional communication goals, and a timetable for completion of these goals.

6. Rationale for SGD selection. SLPs often work with OTs, PTs and rehabilitation engineers to match a person’s needs and abilities to an appropriate SGD and accessories.

AAC teams often use SGD equipment (i.e., devices, software, accessories) to assess an individual’s ability to learn and use specific device features, as well as to determine any preferences a person might have for a device.

a. General features of recommended SGD and accessories. Table II gives examples of device features SLPs consider during the SGD assessment process.

- Input features: Type of access (direct selection, scanning, Morse code). How it turns on/off, etc.
- Message characteristics: Type of symbols and how much vocabulary person will need. How vocabulary is organized, stored and retrieved. Types of rate enhancement features person will need.
- Output features: Types of speech output (synthesized/digitized), display characteristics (color, font size, dynamic vs. static) and feedback mechanisms (visual, auditory (speech/sound) the person requires.

If an SGD is being recommended, the SLP reports, “[The person] will require a SGD and accessories that have the following features to enable him/her to achieve his/her functional communication goals.” (List required features)

b. Recommended Medicare device and accessory codes. SLPs identify device and accessory codes that match the features the person requires before selecting a specific SGD. [See the **Equipment** section for a discussion of SGD codes.]

If an SGD is being recommended, the SLP reports, “[This individual] requires an SGD from the ____ category (code) and SGD accessories from the ____ and ____ categories (code) to meet his/her functional communication goals.”

c. Description of the equipment and procedures used during assessment process. SLPs will identify all equipment used in the assessment process and the results of any device trials. Figure 5 gives an example from an SLP report.

[Note: Medicare does not require that a trial period occur before a device recommendation is made, but it does require the SLP to describe any trials in the report.]

Figure 5. Example of device trials

In addition to the XXXX, two other SGD’s were considered during the assessment—the ABCD (BBB Inc.) and the YY (a dynamic display device). The ABCD was ruled out because it does not have a dynamic display. Ms. F felt a dynamic display was necessary so she could program and retrieve frequently needed messages. She did not want to memorize codes or type in recurring messages. The YY was eliminated because it does not have a keyboard. Ms. F is still able to use a keyboard. The XXXX offers both options and can accommodate her changing needs over the course of the disease.

7. Recommended SGD and accessories. After everyone agrees on a specific SGD and accessories, the SLP prepares a list of recommended equipment and a rationale for including each item.

The report concludes, “(This individual) requires ____ (name/model number and company of recommended SGD) and ____ (names/model number and company of all accessories) to achieve his/her functional communication goals.”

8. Patient/family support of SGD. SLPs determine the family/advocate/caregiver’s willingness to support the use of the recommended SGD and accessories. The report should state:

The family/caregiver/advocate participated in the assessment process and has/have agreed to support the recommended SGD and accessories and to assist the person to achieve stated functional communication goals.

9. Physician involvement statement. The SLP report also states the date the assessment information was sent to the beneficiary’s physician to request a prescription.

This report was forwarded to the treating physician (name, address, phone number) on ____ (date) so that (he/she) can write a prescription for the recommended SGD and accessories.

10. Functional benefit of Upgrade. When requesting an upgrade of a previously issued SGD, SLPs provide information about the:

- a) features or capabilities of the upgrade as compared to existing equipment,

Table II. Assessment of features required for an SGD and SGD accessories


INPUT FEATURES/ SELECTION TECHNIQUE	MESSAGE CHARACTERISTICS	OUTPUT FEATURES	ACCESSORY FEATURES
Direct selection Keyboard/display: Dynamic /static, size, # of keys/ locations Activation type: Touch or pressure sensitive; adjustable Indirect contact (e.g., optical pointer, eye gaze, other)	Type of symbols Words, phrases, letters; tactile; pictures (color vs. black & white); pictographic Vocabulary size # of words, phrases, etc. needed	Type of auditory output Synthesized speech Digitized speech Other sounds	Mounts Position of switches Position of SGDs Portability: Size & weight, transport/mount, case/carrier requirements
Scanning Display: Number of keys, dynamic/static Mode: Visual, auditory Type of Scan: Linear, row-column, group-row column directed (joystick, trackball), adjustable speed	Organization of messages Message length; files of messages; # of different messages stored or formulated	Vocabulary expansion Rate enhancement prediction (word, icon) coding strategies screens/levels	Switches Type (pressure, feedback), Pointing devices Type (infrared) Feedback (visual, tactile, auditory)
Encoding Types: Semantic compaction; numeric; alphabetic; Morse code	Message formulation strategies Spelling; words; coding; prediction; combination	Type of visual display Size, color, brightness, clarity, ability to use in sunlight	Protective coverings Extra batteries Carrying cases

b) additional daily functional communication goals the patient can achieve with the upgrade as compared to existing equipment, and

c) importance of the patient's ability to achieve functional communication goals.

11. Assurance of financial independence and signature. SLPs must write a disclaimer statement that testifies to his/her financial independence such as:

The speech-language pathologist performing this evaluation is not an employee of and does not have a financial relationship with the supplier of any SGD or SGD accessory.

After the assessment report is prepared, SLPs sign their name and provide an ASHA certification number and a state licensure number on the original report. The original is sent as part of the funding packet to the supplier. [See next section.] Copies of the report go to the beneficiary, the beneficiary's physician and into the clinical record. 

Governmental



Funding Process for SGDs

This section describes the process for submitting a claim to Medicare for a speech generating device (SGD) and SGD accessories. When submitting funding requests to any agency, it is always important to follow the guidelines and rules very carefully. The requirements for Medicare funding are delineated in two policy statements:

(1) Regional Medical Review Policy (RMRP- issued March 4, 2001), which describes the SLP assessment and reporting requirements to support a Medicare claim for an SGD, SGD software and/or SGD accessories.

(2) National Coverage Decision, # 60-23 (NCD- issued November 30, 2000), which describes the scope of Medicare coverage for SGDs and accessories.⁵

The funding packet

According to the RMRP, an ASHA certified speech-language pathologist (SLP) must conduct a thorough assessment and prepare a report requesting specific equipment. The SLP then sends the report

to the beneficiary's physician, along with a letter requesting that the physician review the report and write a prescription for a SGD and SGD accessories.

It is advisable for the SLP to send a "sample" prescription along with the report and letter. Figure 6 on page 6 gives an example.

When the prescription is completed, the SLP (or beneficiary) mails an original copy of the SLP report, an original copy of the physician's prescription, the co-payment (or secondary/supplemental insurance information) and the supplier's funding form to the supplier for processing.

[Medicare requires the supplier to have original (not faxed) signatures on all documents.] The SLP

contacts the supplier within one week of mailing the documentation to make certain it was received and all materials are in order.

Processing the request

After the supplier receives the required funding materials, the funding coordinator at the company makes sure they are complete and adhere to all Medicare guidelines. Medicare holds the supplier responsible for documentation supplied by the SLP and physician and has the right to audit the supplier at any time to assure compliance with their guidelines.

If necessary, the supplier will contact the SLP to supply additional information. It is important for SLPs to cooperate with the supplier in providing requested information/modifications in a timely manner.

Once the supplier is satisfied that the funding materials are complete and in compliance, the SGD and accessories are sent to the benefi-

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ciary. Then the supplier bills Medicare (and the secondary/supplemental insurer, if applicable) for the remaining amount.

Seven easy (?) steps to SGD funding

To summarize, there are seven step to SGD funding:

Step #1. SLP conducts comprehensive assessment for an SGD and SGD accessories.

Step #2. SLP sends report to physician.

Step #3. Physician writes a prescription for SGDs and SGD accessories.

Step #4. Original SLP report, original physician's prescription, co-payment or supplemental insurance information and any required supplier forms are sent to the supplier.

Step #5. The supplier reviews and, when complete, processes the funding request.

Step #6. The supplier ships the device and accessories to the beneficiary.

Step #7. The supplier bills Medicare and secondary/supplemental insurance (when applicable).



Figure 6. Example of a physician's prescription

Date: _____
Name: _____ D.O.B. _____
Insurance Policy: Medicare Policy no: _____
Diagnosis: Medical diagnosis + ICD-9 Code _____
Speech/Language Diagnosis +ICD-9 Code _____
Prognosis: [Poor for speech]
Medical necessity: [Patient requires a flexible, voice output communication prosthesis to achieve functional communication goals, such as communicating basic needs and directing medical care; participating in health care decisions; managing medical treatment and rehabilitation; and so on.]
Length of time: [Lifelong]
Prescription: Speech Generating Device and Accessories (HCP/CS-CPT-Code: K0541 - 0547) SGD:
Accessories: _____
Medicare Approved Manufacturer/Vendor: _____
Address: _____
Phone: _____
Detailed information about the SGD and SGD accessories: _____

Physician's signature

License number

UPIN#sDate _____

Equipment

Medicare reimbursement for SGDs

Medicare is a cost reimbursement program. This means the beneficiary must purchase or rent an item of Durable Medicare Equipment (DME) before a Medicare claim can be submitted. [Note: SGDs and accessories are considered DME.] Once a claim is submitted, Medicare then decides whether an item is eligible and, if so, how much to reimbursement them.

Medicare uses “codes” to help make these decisions. Codes represent groups of devices/equipment that have similar characteristics.

The Medicare guidance for SGDs has created seven codes: four for SGDs (K0541 to K0544) and one each for AAC software (K0545), SGD device mounts (K0546), AND SGD device accessories (K0547). These codes are used in coverage decisions. See Table III for descriptions.

Medicare uses two approaches in deciding how much to pay: (1) *Fee schedules* and (2) *Individual consideration*. Both approaches yield what is called the “reasonable charge.”

(1) *Fee schedules.* The SGD codes K051-K054 have a *fee schedule*. This means Medicare considers the “reasonable charge” the same for every device in the code.

(2) *Individual consideration.* The SGD codes K055 - K057 are subject to *individual consideration*. This means the “reasonable charge” is set separately for each item in the code.

Once Medicare sets the “reasonable charge,” it will pay either 80% of the actual cost of the item or 80% of the fee schedule if one exists--which-ever is less.



Accepting assignment

To make the service delivery and billing processes easier and more efficient for individual beneficiaries, some SGD manufacturers follow a practice called “accepting assignment.” This is a very common billing/claims procedure used by most Medicare Durable Medical Equipment (DME) suppliers. Accepting assignment means the supplier collects only 20% from the beneficiary (or supplemental/secondary insurer) and agrees to “bill” Medicare the remaining 80% of the allotted costs. Suppliers who accept assignment are helping to make devices more affordable and readily available to beneficiaries. If the supplier does not accept assignment, the beneficiary must pay the full fee schedule amount and wait for Medicare reimbursement. SLPs should confer with their clients about this issue before recommending specific equipment.

How manufacturers decide

The manufacturer’s decision to accept assignment is important from a business perspective. When a supplier accepts assignment, the company expects Medicare to reimburse it 80% of the fee schedule amount, or 80% of the actual charge for the device, whichever is less. In addition, the supplier can expect to receive the other 20% from the beneficiary or from the beneficiary’s secondary/supplemental insurance.

Medicare does not allow suppliers who accept assignment to bill the beneficiary for any “balance.” So if a device costs more than the fee schedule amount in a particular category, the supplier, by accepting assignment, essentially agrees to

Table III. Medicare codes, descriptions and fee schedule

Code	SGD K0541	SGD K0542	SGD K0543	SGD K0544	SGD software K0545	SGD Mounts K0546	SGD Accessories K0547
Speech output	Digitized	Digitized	Synthesized	Synthesized	Synthesized	na	na
Message type	Prerecorded <=8 minutes	Prerecorded > 8 minutes	Message formulation	Message formulation	Message formulation	na	na
Message formulation technique	na	na	Spelling only	Spelling and other methods	Spelling and other methods	na	na
Access method	Multiple methods	Multiple methods	Direct physical contact	Multiple methods	Multiple methods	na	na
Medicare Fee schedule	\$399.50	\$1544.10	\$3653.74	\$6914.19	Variable	Variable	Variable
Medicare 80%	\$319.60	\$1235.28	\$2922.99	\$5531.35	Variable	Variable	Variable

accept a reduced amount for the device. Thus, from a business perspective, suppliers are less likely to accept assignment for devices that cost more than an allotted fee schedule.

When suppliers do not accept assignment

When a supplier does not accept assignment, the beneficiary must pay the supplier the full catalogue price for the device before the beneficiary can submit a claim to Medicare. The beneficiary can then expect up to 80% reimbursement of the fee schedule for the applicable code. This works as long as the beneficiary can afford to pay the full cost of the equipment and wait for partial reimbursement. However, many cannot.

When a supplier does not accept assignment, the SLP should ask the beneficiary whether there are other sources to help pay for the device. If not, the SLP should consider recommending an alternative device from the same device category.

Table IV on page 8 lists suppliers who currently accept assignment for SGDs and accessories (as of November 2001). This information changes regularly, so SLPs need to contact SGD and SGD accessory suppliers prior to making recommendations for specific equipment.

For beneficiaries who cannot afford the co-payment.

Medicare has created an exception for beneficiaries who are unable to pay the co-payment amount and do not have supplemental/secondary insurance, but can show “special financial hardship.” While no criteria specify what “special financial hardship” means, Medicare guidance states clearly that the *routine waiver of the co-payment amount is impermissible*. Thus, when a beneficiary asks an SGD manufacturer/supplier to waive the co-payment because of “special financial hardship,” the supplier must determine, on a case-by-case basis, whether to do so.

If necessary, the SLP should discuss the potential for a co-payment waiver and provide the family with information re: how to contact the supplier directly to request a waiver. Manufacturers may allow a family to divide the co-payment into multiple payments.

What beneficiaries pay

To summarize, Medicare requires beneficiaries to pay one of the following amounts for a SGD:

- a) 20% of the actual charge for the device, if the actual charge is less than the applicable fee schedule amount for a covered device.

- b) 20% of the fee schedule for the device, if the manufacturer/supplier “accepts assignment” for a covered device.

- c) The full catalogue or retail price for the device (pending partial reimbursement), if the manufacturer/supplier refuses to “accept assignment.”

- d) Nothing, if the beneficiary has supplemental/secondary insurance that pays the 20% co-payment cost.

- e) Nothing, if the supplier agrees to accept assignment and the beneficiary’s co-payment is waived as a result of “special financial hardship.”



Local Heroes

Just so you know, many individuals have donated their time and expertise to the development of the Medicare SGD protocol. The Medicare Implementation Team (asterisks) continues to donate time to conduct trainings, update the AAC-RERC website with Medicare information and assist colleagues to implement the protocol.

Beth Ansel	*Lew Golinker
*Laura Ball	Audrey Holland
*David Beukelman	Carole Krezman
Catherine Brown-Herman	*Joanne Lasker
*Kevin Caves	*Pam Mathy
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*Delva Culp	*Pat Ourand
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*Molly Doyle	Marsha Sullivan
*Iris Fishman	Michael Weinrich
Carole Frattali	Steve White
*Lynn Fox	Bob Williams
*Melanie Fried-Oken	Michael Williams
Kathy Garrett	Kathy Yorkston

Table IV. Accepting assignment: Manufacturers of SGD's, SGD software and SGD accessories (11/01)

Manufacturer	Contact information	SGD K0541	SGD K0542	SGD K0543	SGD K0544	Software K0545	Mounts K0546	Accessories K0547
Assistive Technology 7 Wells Avenue Newton, MA 02459	www.assistivetech.com 800-793-9227 Phil Saines: psaines@assistivetech.com	no	no	LINK	Gemini SE	yes (call to inquire)	yes ¹	yes ¹
DynaVox Systems 2100 Wharton Street, #400 Pittsburgh, PA 15203	www.dynavoxsys.com 800-344-1778 Michele Rimmel michele.rimmel@dyna- voxsys.com	no	Dynamo (only if dually eligible for Medicaid)	Dynawrite	DynaVox 3100 DynaMyte 3100	no	yes ²	yes ²
Enkidu Research, Inc. 247 Pine Hill Road, Spencerport, NY 14559	www.enkidu.net 800-297-9570 Bob Geenen: info@enkidu.net 866-365-FUND	no	no	no	Handheld Portable IMPACT-D Tablet Portable IMPACT-D PalmTop Portable IMPACT-D	no	yes ³	yes ³
Gus Communications Inc 1006 Lonetree Court Bellingham, WA 98226	www.guscommuni- cations.com 360-715-8580 Gordon Harris admin@gusinc.com	no	no	no	Communicator 25 Communicator 35 Communicator 600 Communicator 3500	Gus! Multimedia Speech System	yes ⁴	yes ⁴
Prentke Romich Co. 1022 Heyl Road Wooster, OH 44691	www.prentrom.com 800-262-1984 Angie Neveadomi adn@prentrom.com	no	AlphaTalker Chat Box Side Kick	no	Delta Talker Vanguard Vantage PathFinder	no	yes ⁵	yes ⁵
Saltillo Corporation 2143 Township Road #112 Millersburg, OH 44654	www.salttillo.com 877-397-0178 Dave Hershberger aac@salttillo.com	no	ChatBox	Portable Chat	no	no	no	yes ⁶
Words+, Inc. 1220 West Avenue J, Lancaster, CA 93534	www.words-plus.com 800-869-8521 x 209 Lynn Henderson lynnh@words-plus.com	Mini Message Mate 8/60	Message Mate 40/60		Freedom 2001E Freedom 2001T FreedomLITE 2001E FreedomLITE 2001T	EZKeys/ Windows Talking Screen/ Windows	yes ⁷	yes ⁷
Zygo Industries PO 1008 Portland, OR 97207	www.zygo-usa.com 800-234-6006 Kim Wright kim@zygo-usa.com	no	no	LightWRITER SL35-LQBDO SL35-LQBDO SL35-LABDO SL35-LABDK	LightWriter SL87 LightWriter SL86 Dialect A/B	no	no	no

1 Assistive Technology

Mounts: CJT Profiler and Daessy Folding, Swing-Away and Rigid Mounts.

Accessories: Origin Headmouse, Madentec Tracker, Tash Buddy Button, IntelliKeys keyboard, Discover Switch, Penny & Giles Joysticks, backup drives, key guards, moisture guards (when ordered with the LINK/Gemini).

2 Dynavox Systems

Mounts: DynaMount Rigid and Fold-Down, DynaMount Desk Mount, Mighty Mount, Switch Mount, DynaMo Mini Mount and DynaMo Hybrid Mount

Accessories: Switches, Keyguards, carry cases

3 Enkidu Research, Inc

Mounts: Handheld Quick Release (Daessy), Handheld Tube mounting plates (Daessy)

Accessories: Switch Interface Adapter, WordPower for Tablet, Mayer Johnson Symbol Pack; Keyguard for Handheld; 4 x 5 grid and 6 x 4 keyguards for Tablet.

4 Gus Communications, Inc. Devices in SGD K4 can be configured with Gus! Multimedia Speech System or Speaking Dynamically Pro/Boardmaker or Dynavox for Windows

Mounts: Rhamdec or Daessy or DJ Tech

Accessories: Carrying cases; Switches

5 Prentke Romich Company

Mounts: Daessy Folding Mount, Wheel Chair Mounting Kit (Rigid)

Accessories: Carry cases, keyguards, WordPower, switches, headpointers

6 Saltillo Corporation

Accessories: Carrying Cases

7 Words+, Inc.

Mounts: Simplicity wheelchair mount; CJT wheelchair mount; Slim Armstrong switch mount; Universal switch mount A

Accessories: IST Switch and one sensor (Infrared, Sound, Touch); Big Red switch; Kensington Expert Mouse; Eyebrow switch; Tracker Head Tracker; Intellikeys; Jellybean; Joystick; Microlite switch; Microwitch; Mouse; Pillow switch; Sip and Puff switch; Soft switch; Specs switch.

Case Examples



To illuminate the Medicare assessment process, this issue presents three case examples. We are all indebted to Laura Ball, Pat Ourand and Joanne Lasker for taking the time to share these useful illustrations of what goes into the assessment process.

Case #1: Person with dysarthria: ALS

Laura J. Ball, Ph.D., CCC-SLP

Demographic information

Age & Gender: 41 year old male

Diagnoses: Amyotrophic Lateral Sclerosis (ICD-9 Diagnostic Code 335); Dysarthria (ICD-9 Diagnostic Code 784.5)

Physical: Bulbar onset ALS. Ambulates with a walker. Continues to exhibit hand movement, although mild weakness with muscle wasting is apparent.

Communication: Mild dysarthria due to ALS. Speech intelligibility is deteriorating. This patient will require an SGD throughout the course of this disease.

Life situation

Family: Currently lives at home with wife and three young children. Prior to the illness, he enjoyed jogging, playing basketball with his friends, playing computer games and cooking.

Academic: College graduate

Employment: Computer programmer and consultant, department manager.

Financial: Military benefits until medical discharge. Currently has applied for Medicare and has been approved. Has supplemental insurance on his wife's policy. Minimal private funds are available.

Assessment

The SLP completed the SGD assessment in one session. The following skills/abilities relate to use of an SGD.

Speech: Demonstrates mild dysarthria. Speaking rate of 101 wpm and intelligibility of 91% on the Sentence Intelligibility Test.⁵

Note: Research has shown that a person with ALS reaching a speaking rate of approximately half of normal (100 wpm) will experience a rapid decline in intelligibility within 2 months.⁶

Primary means of communication includes slow, dysarthric natural speech, hand gestures and exaggerated changes in vocal intonation. Decreased intelligibility places him at Stage 2 on the ALS Severity Scale Speech Rating, indicating a need to supplement his natural speech with an SGD, in view of the imminent decline in intelligibility. [See Table I, page 3.]

Hearing: Attends and responds to auditory information presented at conversational loudness levels. Understands DECTalk synthesized speech as judged by appropriate responses and reactions to message output. Although slight sensori-neural hearing loss was established, he discriminated sentences on an SGD with 100% accuracy.

Vision: He wears corrective lenses that appropriately adjust his visual acuity. He located folders and words on SGDs and read orthographic symbols with font size 10 using glasses, and font size 14 without lenses.

Language and Cognition: Although no formal testing was conducted, he recalled extensive directions on how to locate this clinic and recalled previous conversational interactions. He was immediately responsive to questions and initiated interactions with the SGD after only a very brief explanation. No one observed or reported any cognitive or linguistic changes.

Current communication status and behaviors

- Slow, dysarthric natural speech.
- Independently uses multiple modalities to communicate, including gestures, facial expressions, exaggerated vocalizations and pointing.
- Unable to produce legible written messages due to ALS affecting spinal musculature, leaving hands and arms considerably weakened. As the disease progresses, will become increasingly paralyzed and therefore unable to access an SGD with a keyboard.

- Will benefit from an SGD and accessories to compensate for his deteriorating speech and writing skills.

- Currently communicates needs & wants using speech; however, the dysarthria is rapidly progressive.

- Operates computer-based equipment readily, with extensive previous computer experience.

Communication needs

Family roles and psychosocial well-being: Because his children are young, he needs a system that enables him to continue in his role as father, disciplinarian and provider. Needs to communicate with his spouse, relating messages to her as a caregiver and for intimacy. Needs a means of communicating with immediate family who live at a distance. Needs a way to converse with family, co-workers, and friends so he does not become isolated.

Occupational Roles: His occupation as a computer consultant requires communication face-to-face and on the telephone. He participates in administrative meetings and is expected to rapidly present detailed information before a group.

Medical & Emergency: Needs an effective means to call for assistance. Due to the progression of ALS, he needs to convey changing medical information and needs to his medical providers. Will need an SGD that offers multiple methods of access over the course of the disease.

Functional communication goals

Functional communication goals are to use a synthesized SGD with a traditional orthographic display to:

1. Express needs/physical problems/pain with 90+% accuracy.
2. Choose leisure activities with 90+% accuracy.
3. Express greetings and family rituals with 90+% accuracy.
4. Offer information about recent events with 90% accuracy.
5. Retell stories about past events and store lengthy messages for later retrieval with 90% accuracy.
6. Communicate effectively at work.

Rationale for device selection

The assessment focused on determining his needs regarding

Continued on page 10

Case Example #1, Continued from page 9

input, message characteristics, output and SGD access.

Input: Be able to use multiple access methods to accommodate changing needs, fatigue and increasing paralysis: keyboard initially, switch for scanning and head-controlled input device for direct selection when hands weaken and can't use a keyboard.

Message characteristics: Formulate complex messages, store and retrieve messages using orthographic symbols and rate acceleration techniques.

Output: Have synthesized voice output (DECTalk) so he can talk with his children, be understood in public settings, noisy environments and when traveling in a car.

Other Features: Carry the SGD with a shoulder strap initially; battery power for up to 4 hours; mount it on wheelchair as disease progresses.

The assessment determined he needs an SGD from category K0543 or K0544 and accessories from categories K0546 (mounts) and K0547 (switch, HeadMouse).

Specific device recommendations

He was introduced to the Freedom 2000 (Words+, Inc.), Palmtop (Enkidu Research), Link (Assistive Technology), LightWriter (Zygo), DynaMyte (Dynavox), and the DynaVox 3100c (Dynavox). During the assessment.

(1) He indicated an instant preference for the Freedom 2000.

(2) He immediately produced communicative utterances using it with less than 5 minutes of instruction.

(3) The SGD increased his frequency of communication attempts, attention during communicative interactions and success in answering conversational questions.

(4) He used a HeadMouse to access the EZKeys onscreen keyboard and a specs switch with scanning when he fatigued.

The following SGD and SGD accessories were recommended

1. *Freedom 2001-E Toughbook* (F2001E-1D1), with Micro CommPac DECTalk speech output and EZKeys for Windows.
2. *Specs Switch (SPECS)*.

3. *HeadMouse* (HEADMOUSE) head-controlled input device.

4. *HeadMouse Battery* (HEADMOUSE-B1). Rechargeable battery to power the HeadMouse.

Note: All equipment is available from Words+, Inc.

Intervention/Acquisition

Funding was obtained (80% from Medicare and 20% co-pay from the supplemental policy.) Upon receipt of the SGD, he was scheduled to receive 45 minutes of individual therapy in each of 5 sessions. However, he used the device immediately and was only seen for one additional session to teach him aspects of the rate-enhancing features. He attained all of his functional communication goals in two treatment sessions.

Impact of treatment

Currently, he uses the SGD to prepare stories and messages for physicians during clinic visits and to store agenda items for business meetings. He has maintained his employment by combining on-site work and home consultation.

He now relies on the Freedom 2000 to communicate. His wife recently said their youngest child only knows "Perfect Paul" as her

father's voice. His friends tease him about feeling "ordered" around by the DECTalk. He participates in community activities and provides frequent "consultative" assistance to individuals with ALS regarding communication options.

Afterthoughts

This case example describes what occurred for a person with bulbar onset ALS. Persons with spinal or mixed onset ALS may require a different device profile. In either case, access is a vital issue. Individuals with progressive neurodegenerative diseases require an SGD that adapts to changes in needs and abilities. It is important to select an SGD that requires minimal learning, since these individuals typically receive limited intervention and many do not choose to expend their valuable time and limited energy learning a complex SGD.



Case Examples



Case #2: Person with dysarthria: DD

Pat Ourand, M.S., CCC-SLP

Demographic information

Age & Gender: 43-year-old male

Diagnoses: Cerebral palsy (ICD-9 Diagnostic Code 335), Severe Dysarthria (ICD-9 Diagnostic Code 784.5)

Physical Status: Quadriplegia resulting in paralysis and significantly reduced strength, force and range of motion in upper and lower extremities.

Communication Status: Current speech is limited to use of guttural sounds primarily to answer yes/no questions. He has relied on an alphabet/word board to communicate since he was 12 years old. He is literate.

Life situation

Family: Lives in his own apartment. Has 24-hour staff support for activities of daily living (ADLs) and routine medical care. His

mother and sister, who live in a neighboring state, are able to understand his natural speech.

Academic: Completed high school. Earned Associates Degree in Computer Science from a local community college (1994).

Employment: Works part-time in a supported work environment. Does data entry work and is paid at a piece rate. Also works on an advocacy project for the ARC, assisting other adults with developmental disabilities to complete interviews.

Financial: Receives Social Security Disability Insurance, survivor benefits as a disabled adult child. Since he receives SSDI, his health insurance is Medicare. Because his monthly SSDI

benefits are sufficiently low, he also qualifies for Maryland's Medical Assistance (MA) program. Through this program, he is eligible for parallel health insurance benefits, but no additional cash benefits.

Current communication status and behavior

He is a very willing and able communicator. He uses his voice to initiate communication and respond to "yes/no" questions. Speech intelligibility is poor. Pragmatic skills are strong; his use of syntax and semantics are intact. He uses his alphabet/word board to express language and enhances his interactions using gestures, facial expressions and exaggerated vocalizations. He points to letters/words on the board with his right index finger. He is unable to write because of his quadriplegia. He often uses a whole word approach when constructing messages. In the past, he used E Z Keys for Windows, a communication software program, which ran on a laptop computer. However, he had difficulty using the dynamic word prediction program.

Assessment

Sensory: Vision and hearing are adequate for his use of an SGD.

Motor: Has a power chair that he controls with a joystick positioned on the right side of the wheelchair. He is unable to transfer independently to and from the wheelchair and other surfaces and requires physical assistance for most activities of daily living. His alphabet/word board is approximately 17.5" inches by 13.5" inches. He accesses it using his right hand and right index finger.

Language and cognition: Review of previous SLP reports over the past 10 years indicates his receptive language is relatively intact and highly functional. He comprehends sophisticated directions and engages in conversations with both familiar and unfamiliar partners. He likes to read newspapers and magazines.

During the assessment, he used a variety of SGDs and had no difficulty

learning to use the features on several devices, composing messages with minimal assistance. He clearly has the sensory, motor, cognitive and linguistic skills to use an SGD.

Communication needs

He identified the following communication needs:

Home: Needs a way to make telephone calls and provide instructions to caregivers.

Occupational Roles: Needs a way to talk with peers, colleagues and supervisors at work.

Psychosocial well being: Needs a way to discuss current events with roommates, staff and co-workers. Needs a way to initiate and maintain a conversation with unfamiliar partners in the community.

Medical & Emergency: Needs a way to phone someone in case of an emergency and schedule appointments. Needs a way to notify workers at his apartment of emergency situations affecting him and/or his roommates.

Functional communication goals

The following treatment goals were established.

- Signal a caregiver or roommate in another room using an SGD, with 100% accuracy.
- Using an SGD, converse with his mother, other family members and friends on the telephone in case of emergency and for other reasons at least once weekly, with 90+% accuracy.
- Independently use an SGD in face-to-face interaction to communicate basic needs and wants and to converse with caregivers in his home daily, with 80% accuracy.
- Schedule medical appointments and speak with medical professionals using an SGD, with 90% accuracy.
- Express detailed needs, ideas, questions and answers to medical professionals, caregivers, family and friends using an SGD, with 90% accuracy.
- Ask questions and provide responses in community-based interactions, such as asking a clerk for help at a store using an SGD, with 90% accuracy.

Rationale for device selection

The following device features were identified as critical:

Input: Membrane sensitive keyboard with up to 128 locations, positioned slightly to the right of midline, about 6-9" from the body at approximately a 30-degree angle.

Message characteristics: Word prediction, word endings and frequently used words list.

Enable storage and retrieval of messages prepared in advance.

Enable message formulation using a combination of words and/or letters.

Output: Intelligible synthesized speech output (DECtalk).

Auditory, tactile and kinesthetic feedback for targeting and access

Mounts and Accessories: Keyguard to optimize accuracy of activations and increase rate.

Specific SGD recommendations

Assessment information revealed he requires an SGD from category K0544. Devices from the K0541 and K0542 categories were deemed inappropriate because he has a significant need to generate novel utterances. SGDs from K0543 do not offer him an appropriate rate enhancement technique (*i.e.*, Word Power) or sufficient storage and retrieval options. Two SGDs from K0544 were considered.

The Tablet Portable IMPACT was offered but ruled out because of its size and touch window. He needs a device with larger targets. Also, the IMPACT has a touch screen. His rate and accuracy are better using a membrane keyboard.

The Pathfinder has dynamic and static displays, an alphabet/word software program known as WordPower and dimensions that approximate his non-electronic letter/word board. The membrane keyboard has two keyguards. He can select pre-programmed and whole messages, customize messages and have intelligible speech output.

Continued on page 12

Case Example #2, Continued from page 11

During a one-month trial period (four 30-minute sessions/total of 2 hours), he learned to generate spontaneous utterances with appropriate content and format the PathFinder without cueing (e.g., *I will call you later. She should not talk to him.*). At the end of the trial he stated, "I love this device!"

Based on the assessment and one-month trial period, the following equipment was recommended:

PathFinder with WordPower software (K0544).

This SGD is available from the Prentke Romich Company.

Case Examples

Case #3: Person with Apraxia/Aphasia: CVA Joanne Lasker, Ph.D., CCC-SLP

Demographic information

Age & Gender: 51 year old male

Diagnoses: CVA (ICD-9 Diagnostic Code 436) sustained 3 years prior to evaluation, moderate receptive and expressive aphasia (ICD-9 Diagnostic Code 784.3), moderate to severe apraxia of speech (ICD-9 Diagnostic Code 784.69).

Communication Status: Aphasia and apraxia are stable and not expected to improve significantly. Speech is limited. Patient and his family are frustrated. They heard about the University Speech Clinic at a hospital-based Stroke Support Group. They came because they wanted him to "talk again." Prior to this assessment, they had not been exposed to speech generating devices.

Life situation

Family: Lives with wife, who works as an elementary schoolteacher. Has two older children (21 and 17 years old) and a two-year-old granddaughter

Academic: 2 years of college

Employment: Worked as mechanical press operator (computer-operated machine). Unable to work since stroke.

Intervention/acquisition

The evaluation was completed in June 2001; final funding request was submitted in August 2001 and he received the device in September 2001. He obtained funding [80% from Medicare; 20% from the Division of Rehabilitation Services (DORS). DORS also authorized 12 treatment sessions with an SLP. He is receiving weekly sessions at his work site to target stated functional goals.



Lost driver's license and would like to re-apply for licensure.

Financial: Has limited insurance through workmen's compensation.

Some funding support through state vocational rehabilitation. Now on disability and Medicare-eligible.

Current communication status and behaviors

Current communication methods are highly inefficient at conveying novel or complex information to communication partners. He occasionally initiates conversation about a variety of topics with family members and therapists, but he is reluctant to attempt to speak to less familiar communication partners, e.g., he no longer "chats" with other parishioners after church. His comments are often unintelligible to unfamiliar communication partners; and he is limited to responding to simple questions. He cannot talk on the phone.

Previous treatment: He participated in inpatient and outpatient treatment 2x weekly for a year after his stroke.

Treatment focused on improving: (1) the effectiveness of his communication by increasing verbal productions, (2) reading and writing skills and (3) oral-motor skills. His verbal productions did not improve significantly.

Impact of treatment

He uses his device daily at work, in his home and throughout the community. He is currently attending a 2-week vocational evaluation and uses the SGD with staff to request appointment times, arrange transportation and complete phone calls to family and friends. He is learning to use the infrared features of the device to augment his writing. His supervisor at work is pleased with his use of the SGD. His mother states "He has it all the time and loves it to death!"



Prognosis: Given the time post onset and current severity of his apraxia and moderate aphasia, his prognosis for developing functional speech is poor. In addition, his needs cannot be met using natural communication methods (e.g. speech, gestures, writing) or low-technology speaking aids (e.g. communication book). He requires an SGD so he can interact effectively with both familiar and unfamiliar communication partners.

Assessment

The current assessment consisted of two 90-minute sessions and focused on obtaining more information about his cognitive, speech, language and literacy skills (through SGD trials) with the purpose of selecting an appropriate SGD and accessories so he could achieve functional communication goals.

Language. Standardized tests confirmed his aphasia and apraxia of speech. He has a moderate impairment in language comprehension and a severe impairment in expressive communication. He is limited in his ability to initiate important topics of conversation because he has word-retrieval difficulty (due to aphasia) and has difficulty articulating (due to apraxia).

Western Aphasia Battery: Overall Aphasia Quotient: 56.4/100; Spontaneous Speech: 4/10 (Fluency, Grammatical Competence, and Paraphasias); Auditory Comprehension: 9.3/20; Repetition: 4.4/10; Naming: 5.5/10; Reading and Writing: 14.7/20³

Table V. Example of cognitive assessment for SGDs

COGNITIVE SKILL DEMONSTRATED	TASK	TEACHING	PERFORMANCE
Recall memory Recognition memory	Navigating through symbol-based and keyboard pages	Introduction to dynamic display device for 15 minutes	Independently navigated among 30 different screens
Attention	Noticing symbols in all locations of screen	None required	Attended to symbols in all locations without difficulty
Problem-solving	Returning to Home Page	Demonstrated in 15-minute introduction to device	Consistently returned to Home Page without difficulty
Organization Problem-solving	Ability to locate a specific page from the Home Page	Demonstrated how to find a page by looking at symbols and text on Home Page	Required no more than 4 hits to locate desired pages (e.g., Home Repair page)
Attention Literacy skills	Word-prediction on keyboard page with symbols	Instructed once	Used feature independently
Executive skills Attention to screen Organization	Storing phrase-length messages under symbols	Demonstrated twice	Completed with written instructions after 15 minute delay with intervening stimuli
Executive skills Recall memory Sequencing	Using operational features of device	Demonstrated once	Turned device off/on without assistance; changed voice quality and speaking rate with minimal verbal cues

Apraxia Battery for Adults: Scores consistent with severe to profound apraxia of speech; however, results were confounded in part by the presence of expressive language deficits.

Cognition: (assessed through device trials.) The assessment revealed he has the functional cognitive and linguistic abilities necessary to use an SGD. He can create, store and retrieve messages related to a number of topics, using both text and pictorial representations. He could locate prestored messages as well as generate new messages using a keyboard and word-prediction array with both text and symbols. See Table V for a summary of areas assessed.

Physical/Hearing/Vision: Walks slowly with cane. Persistent weakness of his right arm/hand which is splinted. Can use direct selection to access a device with his left hand when he places the device on a table or when the device hangs from a strap around his neck. His hearing and vision are within normal limits and adequate for SGD use.

Communication needs

The patient and his wife identified the need for him to communicate in the following contexts:

Family Roles: Return to work so he can resume a “wage-earner” role within his family. Interact with family members of a variety of ages and literacy levels. Participate in marital counseling sessions. Discuss practical matters related to home maintenance, behavior-management with children, financial matters with his wife.

Psychosocial Well-being: Interact with church members. Conduct interactions with familiar and unfamiliar communication partners in the community.

Discuss house renovations with various professionals. Pass the driver’s licensure exam.

Medical & Emergency: Talk on the phone in emergency situations when he is babysitting. Speak with medical personnel and therapists (physical, psychological, speech). Deal with personnel involved with potential road emergencies when he regains his driver’s license.

Functional communication goals

The following functional communication goals were identified:

1. Formulate two-word sentences using the word-prediction spelling mode of the SGD in role-play situations taken from his daily activities with, 80% accuracy within 8 weeks.
2. Program a “news” message on the SGD and communicate it to group members weekly during 90% of all group sessions.
3. Use written instructions to independently program a new page on the SGD with 12 messages and then link the page to the keyboard page, within 3 months.
4. Access pages of stored messages and use these messages appropriately in consumer-based transactions in person and on the telephone, 80% of the time within 3 months.

Rationale for device selection

The following SGD features were identified as necessary.

Input: Direct selection.

Message characteristics: Letter-based and symbol-based; Word-prediction; Multiple levels so messages can be stored and

organized in ways that are similar to what he currently uses (communication book); Vocabulary that enables him to formulate novel messages or use prestored phrases/sentences.

Output: Text-to-speech synthesis so he can generate novel messages and spell; auditory feedback to improve auditory comprehension; speech that is intelligible to children and to unfamiliar listeners over the phone.

Other Features: Lightweight, so he can carry it; battery life of at least 5 hours, so he can use it in a variety of settings away from electrical outlets.

Specific SGD recommendations

He was introduced to a variety of SGDs from categories of K0542 (TechTalk 8 and MessageMate), K0543 (Lightwriter), and K0544 (Dynamo, DynaMyte, DynaVox 3100).

Devices from multiple categories were presented during this evaluation because we were unsure about his SGD-based communication skills, given the cognitive-linguistic aspects of his aphasia. By offering trials with several types of devices, we answered questions about his message capacity, formulation abilities and language representation skills as described:

K0542 -His needs and abilities exceed the available vocabulary on the TechTalk8 and MessageMate.

K0543 - He was unable to spell adequately to generate novel messages on a purely text-based device.

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Case Example #3, Continued from page 13

K0544 - The black/white symbols on the Dynamo display were difficult to discriminate and interfered with his symbol selection accuracy and rate. The DynaVox exceeded the size/weight criteria for the patient to carry independently/safely. During trials with the DynaMyte, the following behaviors were noted:

- He answered 20 questions regarding identifying/biographical information, using preprogrammed screen and keyboard;
- He expressed feelings and opinions re: home repair, parenting issues, and church-related politics in conversation with his wife;
- He participated successfully in 80% of conversational turns with an unfamiliar communication partner;
- He described a picture from a magazine (containing a scene of men on a boat) using specific language so an unfamiliar person could “sketch” picture without seeing it;
- He used the Adult User dictionary on two occasions to find vocabulary not available on custom screens;
- He typed functionally on the keyboard screen and used word prediction six times in conversation;
- He demonstrated the ability to use the carrying case to transport the device.

As a result of the assessment, the following equipment was recommended: (1) DynaMyte 3100 (DMYT3100 (Category K0544) and (2) DynaMyte Carrying Case (CC-DMYT) (Category K0547).

All equipment is available from Dynavox Systems, Inc.

Intervention/Acquisition

The device was funded in part by Medicare (80%) and in part by vocational rehabilitation (20%). It took six months to acquire due to need to educate vocational rehabilitation personnel about the efficacy of SGD's in achieving communication goals. [Editor's note: How frustrating.]

Upon receipt of the recommended SGD, he attended one individual and one group SLP session per week for 15 weeks to achieve functional communication goals. The SLP used a context-based treatment approach in which specific skills were taught, practiced in exercises, practiced in role-play, and then tried in “real life” situations. He made substantial progress on all goals.

1. Formulating two-word sentences with 80% accuracy. **Outcome:** In a treatment session, he answered questions when the clinician acted as a potential employer in a job interview. In real life, he then successfully asked for a job application from a fast food restaurant and participated in an interview with the manager.
2. Programming a “news” message on the SGD during 90% of all group sessions. **Outcome:** He programmed these messages at home, practiced them in individual sessions and then communicated them each week in an aphasia group.
3. Programming a new page on the SGD with 12 messages independently and linking the page to the keyboard page. **Outcome:** Was accomplished after 4 weeks of treatment.
4. Accessing and using prestored messages appropriately 80% of the time. **Outcome:** Completed 4 consumer-based transactions with the clinician present. He bought stamps from a post office, located an item with the help of a sales clerk and purchased it from Wal-Mart, bought hot cocoa at McDonalds, and discussed the price of roof shingles with a carpenter.

Impact of Treatment

Functional outcomes and consumer satisfaction measures were:

- His wife says, “*The machine has changed our life. He practices with it at home every day. Sometimes I have to remind him to take it with us when we go out. I just say, ‘I’m not doing your talking for you.’ The people in church have been real supportive, and want to talk to him with the machine.*”

- He says, “*The DynaMyte good help BUT speech NO.*” [The DynaMyte is good, but my speech still hasn’t come back.]

- He reapplied for his driver’s license and passed the written and practical driving tests.

- He is currently in the process of looking for employment.

- He uses the device in church and community.

- He uses it frequently as a “practice tool” at home.

Afterthoughts

Often people with aphasia are not considered “candidates” for SGD's due to cognitive-linguistic deficits. However, this patient presented with a profile we see fairly frequently with younger stroke patients. Specifically, his expressive communication abilities were more impaired than his receptive abilities; he had useful literacy skills; he demonstrated an ease with technology; his family was supportive; and he possessed a “problem-solving” attitude toward his chronic communication problem. Our assessment was highly personalized in order to obtain accurate measures of how he would use the SGD to communicate meaningfully in daily activities. Based on the structured tasks provided, we determined that he could create and store messages related to a number of topics, using text as well as pictorial representations.



The AAC-RERC



State of the Science in AAC

On August 2-4, 2001, the AAC-RERC held its *State of the Science Conference (SOSC) on Communication Enhancement*, in conjunction with the 2001 USSAAC Conference in St. Paul, MN. The National Institute on Disability and Rehabilitation Research (NIDRR), which funds the AAC-RERC, requires each RERC to conduct a State of the Science Conference during the third year of funding. In the area of AAC, this was the first time such an event was conducted since the 1990 Visions conference.

The AAC-RERC partners invited members of multiple stakeholder groups to participate for three days of presentations and discussions on various topic areas regarding AAC and AAC technologies. A diverse group of consumers and family members, manufacturers, researchers, service providers, educators and other AAC experts arrived in St. Paul from the U.S. and Canada. AAC-RERC partners and their collaborators prepared and presented "white papers" on various topics. Several papers received input from experts in Europe. In addition, the SOSC highlighted a presentation by consumer researchers who shared preliminary results from the AAC-RERC sponsored, consumer-led research project, Tech 2010.

The main purpose of the presentations was to provide a "foundational base" about the current state of the science in AAC technology, and about potential future directions in AAC technology.

All participants played active roles in the process. Each morning, two papers were presented as part of the USSAAC scientific program. This made it possible for the 200 plus USSAAC participants, as well as the 53 invited SOSC attendees, to hear the papers and comment. After the morning presentations, the invited SOSC participants reconvened for discussions and brainstorming in an effort to come to consensus about the issues in the field related to the topic areas, which are listed below:

Future AAC Technology Needs. Consumer Perspectives. Sarah Blackstone, Michael B. Williams and Mick Joyce

Improving AAC Technologies for Young Children. Janice Light and Kathryn Drager

Improving AAC Technologies for Adults with Acquired Disabilities. David Beukelman and Laura Ball

AAC Performance and Usability Issues: The Effect of AAC Technology on the Communicative Process. Jeffery Higginbotham and Kevin Caves

Improving Connections Between AAC Technologies and the World. Kevin Caves, Howard Shane and Frank DeRuyter

Enhancing Participation in Employment through AAC Technologies. David McNaughton, Diane Bryen and Solomon Rakhman

Enhancing Literacy Development Through AAC Technologies. Janet Sturm and David Yoder

Tech 2010: How do people learn to use an AAC device? Tracy Rackensperger, Michael B. Williams, Carole Krezman and David McNaughton

Following the conference, the papers were posted on the AAC-RERC website for additional comments. The Journal of the International Society for Augmentative and Alternative Communica-

Log on to AAC-RERC Website www.aac-rerc.com

It has valuable, up-to-date information about the **Medicare funding process** and **assessment protocol for AAC devices**. It also has AAC-RERC project updates, white papers, ways to contact AAC-RERC partners and general AAC information.

Go to www.aac-rerc.com. The rest is easy.



tion, *Augmentative and Alternative Communication (AAC)* will publish the revised, peer-reviewed versions of these white papers in the June 2002 issue. This will serve as the official publication of the conference outcomes.

For more information, go to: www.aac-rerc.com or contact Kevin Caves, Director, AAC-RERC, Duke University Medical Center, Box 3888, Durham, NC 27710. 919-681-9983.

kevin.caves@duke.edu



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Resources

- Laura J. Ball, Ph.D./CCC, Assistant Professor
 Munroe-Meyer Institute for Genetics and
 Rehabilitation, 985450, Nebraska Medical
 Center, University of Nebraska Medical Center,
 Omaha, NE 68198-5450
 Phone: 800-656-3937/402-559-6460
lball@unmc.edu
- Molly Doyle, Director, Las Floristas Center for
 Applied Rehabilitation Technology (CART),
 Rancho Los Amigos National Rehabilitation
 Center, 7601 E. Imperial Hwy, Downey CA
 90242, 562-401-6800, mdoyle@dhs.co.la.ca.us
- Lewis Gollink, Esq., Director, Assistive
 Technology Law Center, 202 East State Street,
 Suite 507, Ithaca, NY 14850, 607-277-7286.
lgollink@aol.com
- Joanne P. Lasker, Ph.D., CCC-SLP, Assistant
 Professor, Florida State University, Department
 of Communication Disorders, 305 Regional
 Rehabilitation Center, Tallahassee, FL 32306.
 850-644-8465; jlasker@garnet.acns.fsu.edu

Pamela Mathy, Director of Clinical Services,
 Department of Speech & Hearing Science
 Arizona State University, PO Box 870102
 Tempe, AZ 85287, 480-965-2373.
pmathy@asu.edu

Patricia Ourand, M.S., CCC-SLP, Associated
 Speech & Language Services, Inc., 100 E.
 Pennsylvania Avenue, Courtyard Suite
 Towson, MD 21286, 410-825-9445,
POurand@aslsinc.com