

Augmentative and Alternative Communication (AAC) refers to methods used to either augment (enhance) existing speech, or to serve as an alternative when there is no speech. These methods facilitate sharing information, self-expression, signalling for attention, maintaining contact with others, and problem solving. AAC can be provided by a "computer talking device", but this is just one of a number of strategies.

Addressing communication issues early will enable you to feel better prepared and comfortable if changes occur. For example, if you think that you might eventually want to use a high tech system that can record speech, you can record your voice for future use in such devices. This may be particularly preferable when you have young children.

Which communication strategies are best for you depends on your functional ability and on the situation. You may end up using several different ways to communicate over the course of a day. For instance you may use speech to communicate with your family members who are used to hearing you and can see you. You may prefer e-mail to speaking on the phone with others at a distance. You may write messages or spell using a letter board, or use a device that talks for you when communicating with people who are less familiar with your speech.

Some people want to avoid electronic devices and use only low-tech strategies

and tools while others want the latest, most sophisticated high-tech equipment available. Each device should be chosen with the unique needs of the individual in mind. You should also be aware of how long the chosen system will be useful to you. It is possible you might need to use several strategies as the disease progresses.

FACTORS IN MAKING AAC DECISIONS

Think through what your needs are, and will be in the future. For example:

- Will you need a device mostly for communicating commonly used phrases?
- Are you able to write messages?
- Will you have to communicate with groups of people face to face?

When choosing a device, some of the following factors may be relevant:

- Level of training needed and the complexity of the system
- Cost/coverage
- Portability
- Versatility
- Ease and speed of communication
- Circumstances of use
- Amount of follow-up needed

Before purchasing any communication devices yourself, get advice from an assistive technology unit, from a Speech and Language Therapist (SLT), or from another qualified source such as a

MND Scotland is the only charity funding research and providing care and information for those affected by MND in Scotland.

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rehabilitation engineer, or assistive technology professional. Expert professionals can often access loan equipment and help you select the most suitable devices for you and train you how to use them. Check with your SLT or MND Care Team Specialist to see what devices MND Scotland has available for you to try.

In 2016 the Scottish Government passed a law, of which the details are still being finalised (autumn 2017). When complete, it will place a duty of care on Scottish Health Boards and Local Authorities to ensure that everyone who has lost, or is losing their voice, is provided with a means of communication.

So do not rush to purchase any communication devices yourself. Instead ask your Care Team member to seek advice from a Speech and Language Therapist (SLT), an assistive technology unit, or from another qualified source such as a rehabilitation engineer. Expert professionals should assess you, and help select the most suitable devices for you. They will have access to equipment to loan you and train you how to use it. If there is likely to be any delay in supplying you with suitable equipment, ask your MND Care Team Specialist to approach the Inclusive Technology Coordinator at MND Scotland, who maintains a bank of communication equipment for loan in such a case.

No-Tech Strategies

Strategies to use when speaking muscles start to weaken are:

- Conserve energy
- Take in a full breath before speaking
- Speak slowly with short sentences, and words with fewer syllables
- Say each syllable clearly (over exaggerate) and put pauses in

between words

- Identify the topic first before you go into further detail
- Make your environment as communication friendly as possible: reduce background noise (e.g., turn TV off or on mute), make sure you and your listener can see each other
- If possible, use gestures to add extra information to what you are saying for the listener

Low-Tech Strategies

Many people prefer simple manual systems because they are easy and inexpensive to use.

Writing Boards

Re-usable writing boards such as white boards and magic slates are often the preferred choice when you can still write. Search supermarkets and office suppliers for “dry-wipe” boards. In the USA the term used is “rewritables.”

An occupational therapist can build up markers and pens for you to assist when your grip weakens. Once grip is too weak to hold a marker, you may choose to use a communication board.



Remember these? Magic slates are re-usable light and clean.

The information in this leaflet is believed to be accurate at the time of production, MND Scotland cannot give detailed medical advice, this leaflet should be regarded only as general background information.

Communication Boards

Communication boards may include frequently used messages, topics, and/or letters. Words usually included on communication boards are lists of foods, comfort items, positioning requests, and social phrases. The more information there is, the larger the board must be. At the end of this factsheet, there is an example of a communication board that incorporates all three: letters, topics, and frequently used messages. You simply point to the frequently used message, or letters to spell words. With access to a computer and printer you could easily make one, or have one made, to suit you.

If you can no longer point to letters, then the gaze of your eye can be a reliable method of communicating. Communication boards that use gaze are often transparent (see-through) and usually feature alphabet letters, symbols and/or complete words, phrases, or sentences. To use the board, look at the desired message or combination of letters.

When only face-to face communication is needed and you can still indicate selections on a board by pointing or eye movements, a word or letter board is a good low-tech communication choice.

An SLT can help develop and modify communication boards to suit you. You may have several different boards for different communication scenarios. For example, one board may be dedicated to for daily care routines, while another is used for TV watching.

Signalling Systems

These no-cost systems are usually worked out between you and your regular communication partners. Signalling makes use of facial expressions, eye contact, eye movements, gestures, touch and body language. Some of this

system's drawbacks include the limited nature of possible responses and the inability to communicate with people who are unfamiliar with the system. Personal signalling systems are a valuable backup to high-tech systems that sometimes fail.

Some kind of electrically operated bell, intercom, or buzzer is useful for you to get attention when your communication partners are not in view and you cannot call them. These don't have to be high tech and could be purchased from your local DIY superstore where wireless doorbells are relatively cheap and readily available.

You and your family may want to apply for an emergency response service; especially if there are times you will be in your home alone. Almost any member of your care team will know how to put you in touch with the emergency response service for your area.

Those who join are given a small transmitter (about the size of a small box of matches) with an emergency button on it. When you join an emergency response system the organisers will want to know the names and phone numbers of at least two people who should be contacted in case of emergency.

When the emergency button on the small transmitter is pressed, a signal is sent to the service that tells them who has the emergency. They will know the client's illness and immediately call the names given to them for emergency purposes.

Manual Communication Aids

Assistive devices to aid manual communication (i.e., writing, typing, or pointing to communication boards) include pencil grips, magic slates, and other portable boards, book holders, tilt-top tables, pointers, typing sticks (held in the mouth, hand, or foot), writer's splints,

teletype, telephone for the deaf such as Minicom, and page turners. If you leave home without a carer, it may be wise to wear a MedicAlert (medical emergency) bracelet.

Small Digitised Communication Devices

These devices are useful to use for occasions when you need specific pre-programmed messages. All models use digitised speech, similar to answering machines and voice mail services. They are a more affordable option than high tech devices described below, however they do not offer the same flexibility as the high tech devices. These low tech devices may offer as few as one to four, and as many as 32 messages on one display.

Specialised Telephone Equipment

Special phone services are available. If you are unable to lift a phone receiver and/or dial a phone number, there is a hands-free phone, activated by blowing on a switch, plus an operator dialling service. Speaker phones may also be helpful. For those with speaking difficulties a "Type-Talk" service is available. To use this service you would need a device like a Minicom on which you type your part of the conversation. This is read to the person you are conversing with by an operator speaking on your behalf. Ask an occupational therapist for more information about what is available in your area.

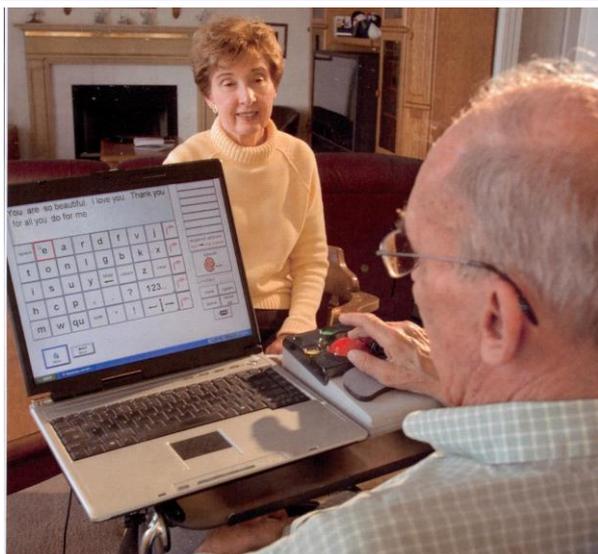


The possum Sero telephone

High-Tech Strategies

If a high-tech communication system appears to be the best solution for you, information about systems that meet your preferences, your needs and functional abilities should be discussed with a SLT. These systems can be very expensive and there is a wide range of high tech devices available.

One of the cheapest "High-tech" strategies is a "pay as you go" mobile 'phone. These come with built in "texting" options which include text prediction, relatively long battery life, and voicemail where callers can leave messages you can either reply to by a text or have someone else call.



A laptop with text to speak software and a communications board display.
Image courtesy of MDA/ALS NEWSMAGAZINE

You can install a text-to-speech (TTS) app on many smartphones; using the app you simply type your message and the device speaks it for you. Similar apps run on iPads and other tablets. Some will let you store commonly used messages, phrases, and/or words. You can also choose one of your saved messages for it to speak. A small portable speaker can be connected by Bluetooth, to amplify the voice of required. However, a drawback to these apps is that your words are spoken by the voice installed on the device. You may not be able to change it.



The possum Primo environmental controller

Other high tech devices vary in size, function, application, and operation.

Most of these systems can accommodate changing physical abilities. In the beginning the person with MND can operate the devices with his/or her hands. The devices can be programmed to accept the lightest of touch should the hands become weaker. Later, if that is no longer an option, the device can be operated by a switch or laser beam using head movement, eye movement, eye-blinks, or any other part of the body that can potentially operate the device.

Many of these systems, such as “The Possum” can be linked to household devices so that the person with MND can independently control the television, lights, telephone, etc. High tech devices can be classified as follows:

Dedicated Communication Devices

These devices are stand alone communication devices; that is they are designed specifically for communication. They tend to be rugged and travel well. They produce a synthesised (artificial) speech. Some offer both synthesised and digitised speech (recorded messages). They can be used on the telephone, with a group of people, or in quiet face to face conversations. An SLT can usually assess which device would be best for you and advise on whether or not such advices can be borrowed locally.

To use the majority of these devices it is necessary to be able to point and press to spell out the message to be spoken.

Lines begin to blur between dedicated communication devices and computers with head movement or eye-gaze recognition systems, for those who cannot point. These systems require a relatively powerful computer, especially to operate an eye-gaze recognition system.



The Dynawrite 2.0 is a dedicated speech synthesiser

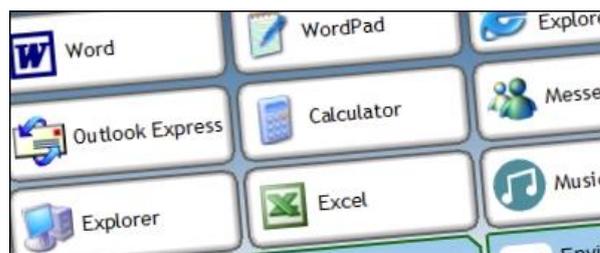
Dedicated communication devices, as opposed to, say, a laptop computer on which communications software can be run, are exempt from VAT. A laptop running communications software is liable for VAT as it could be used by anyone, disabled or not, in the same way as an ordinary laptop. There is a huge grey area here where, if in doubt, contact HM Revenue and Customs.

Computers

Computers can be used for both face to face communication and for written communication. Communication software such as Grid3 or Communicator5 is loaded on the computer to provide speech output and to accommodate for changing physical abilities. These are particularly useful for people who continue to work and are more flexible than a dedicated communication device because they function as both a computer and a communication tool.

Computers really come into their own where when someone cannot point and is reliant on head movement or on their eye-gaze being recognised. Additional hardware is connected to the computer by USB, and additional software is installed. Together these allow the person to use such systems.

A head pointer system has a camera mounted above the computer or tablet screen. The computer user wears a silver dot on their forehead, glasses or other suitable place. The camera fires out infrared light, and uses it to track the movement of the silver dot. This is translated to movement of the cursor on screen. Additional software displays mouse buttons on the screen. By moving your head and hovering the cursor over the on screen mouse buttons, you can trigger mouse commands, or point at letters on an on screen keyboard to generate text for speech, email or creating documents, and also browse the web, use social media etc.



"The Grid 3" can make windows programs accessible on eye-controlled systems

In an Eyegaze system, an infra red camera is attached by USB cable and placed below a computer or laptop or tablet screen. Initially it has to be calibrated for the size of the screen, and for the person's eyes. It tracks the movement of the user's retina, and translates this into cursor movement, in a similar way to the head pointer systems described above. It can be used to generate speech, emails, documents, and mouse controls to operate a web browser, social media, etc.

A switch can also be used with either of these systems, if desired, which can provide a more precise way of triggering a mouse button.

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When either of these systems is used with a program like “Grid 3” or “Communicator 5”, the screen can be divided into anything from four to ninety-six sectors with each one containing an icon representing a different word or function. By staring at a sector that word can be added to a sentence which the synthesised voice of the computer can then speak, or a new program can be opened and used.

The one disadvantage of more conventional computers, including laptops, is that they are often bulkier, less portable and not as rugged as devices designed specifically for communication.

However one of the big benefits is that they allow the installation of alternative voices for speech. A generic male and two generic female Scottish voices are available, which at least present a Scottish feature to the voice.

Also, a company called Cereproc now offers a facility to record your voice over

the Internet. It then uses the 300 or so phrases recorded by your voice, and blends them with other voices, to produce a strengthened version of your voice. This can be installed on a Windows computer, and used to generate speech in a voice that sounds remarkably like your own did.

The process currently costs £500 (less 10% discount for MND patients). However you have to plan for the future and decide that you want to record the phrases early enough, while your voice is still more or less intact.



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Further information

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| Communication Matters | www.communicationmatters.org.uk/ |
| Tobii | www.tobiidynavox.com |
| The Grid | https://thinksmartbox.com/product/grid-3/ |
| DynaVox Systems Ltd | www.tobiidynavox.com |
| Possum Environmental Control Systems | www.possum.co.uk/ |
| Inclusive Technology | www.inclusive.co.uk/ |
| Liberator | www.liberator.co.uk |
| Lightwriters (Toby Churchill Ltd) | www.toby-churchill.com/ |
| Techcess | www.techcess.co.uk/ |
| Mounts & More Ltd | www.aacmounts.com/ |
| Malvern Scientific Solutions Ltd | www.malvernscientific.com/ |

Factsheets

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|--------------|---------------------------------|
| Factsheet 6 | Feeding Tubes |
| Factsheet 34 | Adapting to Swallowing Problems |
| Factsheet 35 | Breathing Matters |
| Factsheet 36 | Oral Health |

AAC Centres in Scotland

Email: deborah.jans@educ.edin.gov.uk
Website: www.keycommaac.ik.org

Edinburgh (national remit)

CALL Centre
Patersons Land,
Holyrood Road,
Edinburgh EH8 8AQ
Tel: 0131 651 6236
Email: call.centre@ed.ac.uk
Website: www.callcentrescotland.org.uk

Glasgow (national remit)

SCTCI
WESTMARC,
Southern General Hospital,
1345 Govan Road,
Glasgow G51 4TF
Tel: 0141 201 2619
Email: sctci@sgl.scot.nhs.uk

Fife

FACCT
ASDARC Centre,
Woodend Road,
Cardenden,
Fife KY5 0NE
Tel: 01592 414730
Email: facct.aac@fife.gov.uk

Edinburgh (Lothian)

Keycomm Resource Centre
Lothian Communication Technology
Service,
1c Pennywell Road,
Edinburgh EH4 4PH
Tel: 0131 311 7130

A Sample Communications Board

| I am unable to speak | I will spell it out | Food | Drink | Family | |
|----------------------|----------------------|--------------|------------|-----------|------------------------|
| Monday | A B | C | D | E | Yes |
| Tuesday | F G | H | I | J | No |
| Wednesday | K L | M | N | O | Maybe |
| Thursday | P Q | R | S | T | I don't know |
| Friday | U V | W | X | Y | I would like... |
| Saturday | Z | qu | | wh | Start again... |
| Sunday | 0 1 2 3 | and | the | or | Give me a |
| Week Month | 4 5 6 7 | can | at | an | moment... |
| | 8 9 10 | help! | | | Hang on! |