



Voice banking for motor neurone disease

Over 80% of people with MND experience changes to their speech, which may become slurred or quieter. Some people lose their ability to speak entirely. This is caused by weakness in the bulbar region, affecting muscles of the mouth, throat and tongue. This can lead to problems with speech and voice, which will affect the person's ability to communicate (also referred to as dysarthria).

Augmentative and alternative communication (AAC) is an important clinical intervention for many people with MND. Some may want to bank their voice for future use with high-tech AAC systems.

This information is for health and social care professionals. It gives an overview of voice banking, what the process involves and where to find more information.

Information to share with people with or affected by MND:

- Information sheet 7C – *Speech and communication support*
- Information sheet 7D – *Voice banking*

Further information for professionals:

- Communication, speech and language support guide*
- AAC Pathway for MND*

Download from www.mndassociation.org/publications or contact MND Connect to order hard copies. Call 0808 802 6262 or email mndconnect@mndassociation.org

What is voice banking?

Voice banking allows a person to record a list of phrases with their own voice, while it is strong enough to do so. This recording is converted to create a personal synthetic computerised voice for use with speech-generating communication devices. An infinite number of words and sentences can be generated for when the person is no longer able to use their voice.

Although the voice created will be synthetic and not a perfect replica of the person's natural speech, it will often have a very good likeness and should be easily recognisable to family and friends.

A banked voice does not sound exactly the same as how a person talks. A banked voice can only be used in a communication device, so conversation will be slower than using natural speech. Professionals should help people with MND by setting realistic expectations about the strengths and limitations of this technology.

Best practice is for the professional to demonstrate how their own banked voice sounds using an AAC device. Most providers allow professionals to record and download their own voice bank free of charge. The MND Association provides frequent online training sessions for voice and message banking. Email conference@mndassociation.org to find out more.

People bank their voice for different reasons. Some see it as 'insurance' in case they lose their voice, giving the option of using a computerised synthetic voice similar to their own if needed in the future. Others see it as a way to 'fight back', a way to help preserve their sense of identity.

It is important to recognise that voice and identity are closely linked and a person's decision about whether to use voice banking is a personal one. Whether a person decides to voice bank or not, it is important that they know the option is available and where to go for support if they decide to proceed.

It is important to be aware that using a banked voice used on a communication aid will not speed up the time it takes to communicate, and that using a communication aid will always take longer than a conversation using natural speech.

Views about voice banking may change over time. A person with MND may decide to bank their voice in case they want to use it later on, however if they are unlikely to ever use a high tech AAC system with voice output, other options to support their communication should be explored.

Voice banking is not the same as a digital legacy, where someone makes recordings to leave a legacy for loved ones. However, some families may find the legacy of voice and message banking comforting.

How does voice banking work?

The person with MND records a set number of phrases that are combined to create a synthetic voice, using one of the commercial voice banking providers. This voice can be used to vocalise any sentence entered into a speech-generating communication device. The number of phrases needed varies between service providers, but generally it is between 50 and 3500 phrases.

For someone who is feeling well, in a quiet environment, the process may take as little as 30 minutes. It could take much longer if multiple breaks are needed or the chosen service requires a lot of phrases to be recorded.

Once recorded, the banked voice is stored securely and can be used later, or not at all. There is no commitment to using a banked voice. No cost is incurred until the voice is downloaded onto a communication aid.

Some people use a combination of synthetic voices in a communication aid, depending on who they are talking to. For example, they may use their banked voice with family and friends, and use a different, possibly clearer, generic synthetic voice that comes with the communication device when out in noisy environments. It is straight-forward to switch voices in most communication devices.

Most voice banking services allow therapists to bank their voice for demonstration purposes, and we recommend doing this so you have first-hand experience, and can show the people you support what it sounds like and how it works.

Does voice banking work for everyone?

People with MND with severe dysarthria may not be able to bank their voice, as sentences need to be pronounced intelligibly as they are recorded. If a person with MND wishes to bank their voice, it is imperative they do so as early as possible, ideally before bulbar symptoms develop.

It is possible to bank a voice with mild to moderate dysarthria while speech is still intelligible. However, it is important to make sure the person with MND knows that the synthetic voice produced will resemble their voice at the time of recording, and will not be improved. For those whose voice is not strong enough for voice banking, voice repair may be an option - see *Repairing voices that are already affected* on page 8.

A conversation about voice banking may be needed before a person has come to terms with the possibility they may lose their voice. It is important people are given the time and information to consider whether they want to bank their voice, and to complete the process if they decide to go ahead.

People affected by MND have commented that voice banking can feel like a positive thing to do when many others are negative, so it is important to have the conversation early after diagnosis if possible.

Sometimes, people with MND successfully bank their voice but decide not to use it later. This could be because hearing it brings strong emotions, they do not like the sound of the banked voice, or they expected more from it. Voice banking is a very personal choice, and it is important that the person is given the right information to allow them to make a decision about whether to go ahead.

What equipment is needed for voice banking?

Voice banking service

There are a range of voice banking services available. We are not able to make recommendations, but some of the available options are listed on pages 5-6.

Computer

Voice banking services are accessed online, so a PC or laptop is required, with access to the internet for some or all of the time. Certain services may need to use a particular browser, such as Google Chrome or Internet Explorer. These are free to download to any computer.

Tablets or Smartphones may not be recommended by some voice banking providers for the recording process – it is important to check first. The VoiceKeeper service do support using a tablet – but read the instructions on their websites first.

Microphone

A suitable microphone is important. This should be a headset model with a USB connection, which allows the person to keep a consistent distance from the mouth to the microphone. Desktop or built-in microphones on PCs or laptops are not suitable. Companies will advise on which headset they feel works best with their software – see individual websites for details.

Recording environment

The recording environment should be quiet and have no background noise. Some services need a microphone test first to make sure the recording environment is suitable. It is important that the same recording environment is used every time. Voice banking can work well when the recording is completed at home, in a quiet room with carpet and soft furnishings to minimize any echo. Avoid recording in a room with hard flooring, such as a kitchen or conservatory.

Specialist support

The speech and language therapist may need to support the person with MND for voice recording.

MND Association equipment loan and funding for voice banking

Where statutory funding or provision has been explored and is not available, we may be able to provide loan equipment for a person with MND to voice bank or provide funding to purchase the completed banked voice if required. If you wish to apply for funding from the MND Association, apply before paying as we cannot fund retrospectively. For further information see page 8 – *Find out more*.

There is no need to apply for voice banking funding until the person with MND decides they would like to use it as part of AAC. The voice banking service will safely store the banked voice until, or if, it is needed. This could be immediately, weeks, months or even years ahead.

The voice banking process

The following steps are the process for most voice banking providers:

- 1** The person with MND registers with their preferred service provider and sets up an account.
- 2** An initial calibration may be needed to establish whether the recording environment and microphone are suitable.
- 3** The person with MND can change settings such as language, if this is available.
- 4** For some providers, an initial set of screening phrases are recorded and then automatically sent to the service provider for analysis.
- 5** If the provider required an initial set of screening phrases, and they are suitable, the person with MND will be notified that they can continue to record the remaining phrases. It may take more than one attempt to get the optimum sound when recording the screening sentences, so the person should not be discouraged if the first attempt is unsuccessful.

- 6 All voice banking service providers offer the chance to re-record any sentence if the quality is not good, and some will rate the recording as you go along. If the person makes a mistake while saying a phrase, it can also be re-recorded.
- 7 Once the banked voice has been created by the provider, the person can listen to it to see if they are happy with the quality and wish to proceed.
- 8 Contact the MND Association to apply for funding when the person would like to download the banked voice to use with AAC to support their communication.

Professional support

Professionals may need to provide support with technical issues, such as:

- how to download or operate the software online
- choosing which version of the software is most suitable for which computer
- login and password details
- how to operate the computer control of the software
- how to set up the microphone and volume levels.

Family members and carers may need to be trained how to support people with the process of voice banking, if help is needed to operate computer controls or set up the microphone.

Generally the process is very straightforward and the individual companies are helpful if there are any difficulties. Alternatively, email the MND Association Communication Aids Service at communicationaids@mndassociation.org for support. The MND Association provides frequent online training sessions for voice and message banking. Email conference@mndassociation.org for details.

After recording

Once recording is complete, the voice banking service provider will create a synthetic voice. The person may register and record with other voice banking companies for comparison if they wish. The final voice chosen can be downloaded onto a suitable speech-generating communication device, with software or a programme that allows selection and use of the personal synthetic voice, or simply saved for later. The voice banking service provider stores a copy of the synthetic voice and it can be downloaded later if needed.

The synthetic voice created will vary depending on the voice banking service used. Synthetic voices are often used on specialist communication aids as well as tablets and smartphones. Any synthetic voice created should be suitable for use on Microsoft Windows-based software and may also be compatible with Android devices, Mac devices or Apple iOS devices, such as iPads or iPhones.

Tips for successful voice banking

- Read the instruction guide for each voice banking service on their websites, as processes vary slightly for each provider.
- Use a headset microphone with a USB connection. A suitable device should be available to purchase for under £50. It is best to check with the voice banking service provider before making a purchase. See individual voice banking service provider websites for advice on which headset to purchase for each product.
- Position the microphone to the side of the mouth, level with the jaw, to avoid feedback or audible breathing noises.
- Have a drink of water to hand and take regular drinks to keep the mouth and lips moist. This helps to reduce noises made when the lips part to begin speaking.
- Record in the same environment each time. There is no time limit to complete the recordings, so it is possible to do this over several days/weeks/months. It is recommended that the voice quality remains consistent throughout recording, so it is best to complete the process as soon as possible.

- Record in a quiet room with carpet and soft furnishings to minimize any echo. Avoid recording in a room with hard flooring, like a kitchen or conservatory.
- Try to record at the same time of day, if recording on multiple days. For people with MND it is often recommended that recordings are made in the morning, when the voice tends to be strongest.
- If the person's voice is not strong enough to bank there are some options. If they have historical recordings of their voice (seven minutes or more recordings are often needed), a synthesised voice could be created using these. Alternatively, a person who has a similar voice and accent to the person with MND could make the recordings as a donor, with permission. One service can 'blend' more than one donor voice together to make a synthetic voice that may have the characteristics of the regional accent. See *Repairing voices that are already affected* on pages 8-9.

Options for voice banking

We have included details below of voice banking services currently available online. These are not provided as recommendations for any particular service, but as links for professionals to find out more about the options available online. To see our most up-to-date information on service providers, visit www.mndassociation.org/communicationaids to view our voice banking comparison chart. Costs or services offered may change at any time. This not an exhaustive list and other options may be available.

CereVoice Me (www.cereproc.com)

Cost: £499.99 (including a headset microphone), or £180 if applied for via The Scott-Morgan Foundation. www.scottmorganfoundation.org/clonevoice. Free for professionals for demo purposes.

Number of recordings: 620 sentences (English), 500 sentences (other languages). Further recordings can be added at additional cost.

Equipment required: Laptop, headset microphone provided

Voice compatible on: Windows and Mac OS

Languages supported: English, French, Italian, Polish, Romanian, Spanish

How to apply for MND Association funding: Voice banking support grant form available at www.mndassociation.org/communicationaids

ModelTalker (www.modeltalker.org)

Cost: \$100 (approximately £86). Free for professionals for demo purposes.

Number of recordings: 400 sentences recommended, up to 3155. Plus up to 1500 message banking sentences. See Message Banking on pages 6-7.

Equipment required: Laptop and headset microphone

Voice compatible on: Windows, Mac OS and Android iOS (within Predictable and Chatable apps only)

Languages supported: English

How to apply for MND Association funding: Via the ModelTalker instructions available at www.mndassociation.org/communicationaids

My-own-voice (www.mov.acapela-group.com)

Cost: Approx. €99 (approximately £85) annual subscription, or €999 (approximately £865) outright purchase. Free to professionals for demo purposes.

Number of recordings: 50 sentences, plus up to 300 custom message recordings

Equipment required: Laptop and headset microphone

Voice compatible on: Windows, Android, UWP iOS (within Predictable and Proloquo4Text apps only)

Languages supported: English (UK, Australian, US), Arabic, Czech, Danish, Dutch, Dutch (BE), Finnish, French, French (Canadian), German, Greek, Italian, Norwegian, Polish (contact Acapela first), Portuguese (contact Acapela first), Spanish, Spanish (North American), Swedish, Turkish

How to apply for MND Association funding: Via the Acapela instructions available at www.mndassociation.org/communicationaids

SpeakUnique (www.speakunique.co.uk)

Cost: £175 for Voice Build option. See *Repairing voices that are already affected* page 8 to find out about Voice Repair and Voice Design services. Free to professionals for demo purposes.

Number of recordings: 150 -300 sentences or 7 minutes of existing audio of the person's voice (if available).

Equipment required: Laptop and headset microphone

Voice compatible on: Windows iOS and Android (within SpeakUnique app or Predictable)

Languages supported: English

How to apply for MND Association funding: Via the SpeakUnique website on the payment page at the end of recording

The Voice Keeper (<https://thevoicekeeper.com>)

Cost: \$299 (approximately £258) for Windows voice. \$75 (approximately £65) for iOS voice. Free with PRC-Salttillo apps and devices. Free to professionals for demo purposes.

Number of recordings: 50-1000 sentences, with more available if requested.

Equipment required: iPhone, MacBook or iPad OR Laptop and headset microphone

Voice compatible on: Windows iOS (within Dialogue AAC, LAMP, TouchChat and The Voice Keeper apps only)

Languages supported: English, Hebrew, Spanish

How to apply for MND Association funding: Voice banking support grant form available at www.mndassociation.org/communicationaids

Message banking

Message banking is a process that allows a person to record particular phrases in their own natural voice that they may say on a regular basis, such as 'Hello' or 'My name is....' or 'I love you'. It can also be used to record sounds unique to the person, such as their own laugh.

It can be used to record phrases a person may say that are meaningful to them, their family or friends. Messages could be used for humour or include terms of endearment, and may reflect a person's personality or culture. They may also be recorded in different languages. It may be useful to involve family members or friends to suggest ideas for specific messages. It is good to use a combination of voice banking and message banking to capture a person's voice, and the two should be discussed simultaneously.

The recorded messages can be played back directly on devices, such as smartphones or tablets. There is no limit to the number of phrases a person can record with their natural voice, but as a synthetic voice is not being produced, it is important to bear in mind bespoke sentences cannot be created from recordings at a later date.

The MND Association is not responsible for any of the following products. These are not provided as recommendations, but as links for professionals to find out more about the options available. Costs or services offered may change at any time. This not an exhaustive list and other options may be available.

You can record messages directly in apps and programmes such as:

Grid 3 (<https://thinksmartbox.com>)

Grid 3 allows the person to record words and phrases which can be played back and is available in 20 languages. Over time it gets quicker and more accurate in predicting the person's sentences based on what they say. Symbols or text can be used, making it suitable for a wide range of people.

It includes a selection of accessible apps, such as YouTube, Facebook, Twitter etc and can also be used with environmental control systems. A wide range of switches can be used to control the app, including eye-tracking access.

A 60-day free trial is available, after which the current cost is from £550 plus VAT.

Grid for iPad: (<https://thinksmartbox.com>)

Like Grid 3, it can be used with either text or symbols and is available in 15 languages.

It is more limited than Grid 3, in that it does not include the additional accessible apps, and is not compatible with voice banking, eye-tracking access or environmental controls. The cost is £9.99 per month or a one-time cost of £349.99. A 30-day free trial is available.

My-own-voice (www.mov.acapela-group.com)

My-Own-Voice enables a person to message bank at the same time as voice banking. The voice bank does not have to be purchased before message banking – it is all done at the same time or later. All the message banking recordings are stored in the same place as the voice bank – making it simpler to download a single file one AAC device to another as MND progresses. Message bank phrases can be added after the voice bank has been created too. Up to 300 message bank phrases can be created, and for each language selected for voice banking.

Predictable (<https://therapy-box.co.uk>)

Predictable allows the person to record words and phrases which can be played back and is available in 10 languages. Over time it gets quicker and more accurate in predicting the person's sentences based on what they say.

This app does require that the person is literate as it is based on text input. TherapyBox have a separate app, Chatable, which uses symbols suitable for people who are unable to read or write.

Alternatively, any Microsoft Windows PC (from Windows 7 onwards) will have a feature, either called Sound Recorder or Voice Recorder, which allows a person to record and save individual phrases. If these messages are saved in mp3 format, they can be used in certain AAC software.

Many other devices such as smartphones or laptops will also be able to record and save messages. If many messages are recorded, thought needs to be given to how these messages are organised. The cost is £199.

myMessageBanking (<https://mymessagebanking.com>)

This system helps to store and organise recorded messages until they are needed. The stored messages can then be downloaded for use on a range of AAC systems. While the files can be imported into many AAC devices, it has been optimised for use with the Tobii Dynavox Communicator 5 software. This system is free for personal use, including the storage and download of the recorded files.

SpeakUnique (www.speakunique.org)

Message banking is possible with SpeakUnique only after purchasing the voice bank and downloading the free app. Contact SpeakUnique if the person with MND wishes to use the message bank recordings created in Speak Unique in another app or AAC device – there is no automatic way to extract these recordings.

Repairing voices that are already affected

This is a developing technique that uses a database of healthy human voices to supplement a voice which has already deteriorated in quality by the time it is recorded. Recorded phrases by the person with MND are combined with other, potentially similar sounding voices previously recorded by the service.

The MND Association is not responsible for any of the following products. They are not provided as a recommendation, but as a link for professionals to find out more about the options available. Costs or services offered may change at any time. This not an exhaustive list and other options may be available.

SpeakUnique (www.speakunique.org)

SpeakUnique's **Voice Repair** service blends speech that is mildly to moderately impaired with other unimpaired voices to create a synthetic voice. A Voice Repair synthetic voice costs £250.

Speak Unique also offer **Voice Design**. This service is for people who have no intelligible speech, and allows them to create a bespoke voice based on desired characteristics, such as regional accent, age and gender. A Voice Design synthetic voice is £300.

Find out more

The aim of our Communication Aids Service is to improve provision and information on AAC on a local and national level, through collaboration with professionals. This service helps people affected by MND and health and social care professionals with queries about communication aids. The service provides limited financial support and loan equipment for communication aids and voice banking if unavailable or delayed through health and social care services.

If you would like to find out more, visit www.mndassociation.org/communicationaids or contact our MND Connect helpline by calling 0808 802 6262 or email communicationaids@mndassociation.org.

The MND Association provides frequent online training sessions for voice and message banking. Email conference@mndassociation.org for details.

Further reading

Benson J. (2015) *Have your MND clients taken out their vocal insurance yet?* Bulletin, The official magazine of the Royal College of Speech and Language Therapists p12–3

Cave, R, & Bloch, S (2021). *Voice banking for people living with motor neurone disease: Views and expectations*. International Journal of Language & Communication Disorders, 56(1), 116-129.

Costello J. M (2016) *Message banking vs Voice banking: A very successful proactive model for people with ALS/MND*. 14th Annual Allied Professionals' Forum. Dublin.

Judge, S and Hayton, N (2022) *Voice banking for individuals living with MND: a service review*. Technology and Disability, 34 (2) pp113-122

The Royal College of Speech and Language Therapists (RCSLT) information on the role of speech and language therapists in voice banking: www.rcslt.org/speech-and-language-therapy/clinical-information/voice-banking/#section-4

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How we can support you and your team

MND Connect

Our helpline offers help, information and support, and signposting to people living with MND, carers, family and health and social care professionals.

Email: mndconnect@mndassociation.org

Phone: 0808 802 6262

Information resources

We produce high quality information resources for people living with MND, carers, family members and health and social care professionals.

www.mndassociation.org/publications

MND Association website

We have a wide range of information to support health and social care professionals working with people affected by MND.

www.mndassociation.org/professionals

Education

Our education programme is designed to improve standards of care and quality of life for people living with and affected by MND. Opportunities include online modules and face-to-face training.

www.mndassociation.org/education

Support grants and equipment loan

Where statutory provision is not available, we may be able to offer a support grant or loan equipment.

www.mndassociation.org/getting-support

Research into MND

We fund and promote research that leads to new understanding and treatment and brings us closer to a cure.

www.mndassociation.org/research

MND Register

The MND Register of England, Wales and Northern Ireland aims to collect information about every person living with MND to help plan care and discover more about the cause of the disease.

www.mndregister.ac.uk

Regional staff

We have a network of regional staff with specialist knowledge of MND. They work closely with local statutory services and community care providers. Contact MND Connect for further information.

Email: mndconnect@mndassociation.org

Phone: 0808 802 6262

MND care centres and networks

We fund and develop care centres and networks across England, Wales, and Northern Ireland, which offer specialist multidisciplinary care for people with MND.

www.mndassociation.org/care-centres

Branches and groups

We have volunteer-led branches and groups nationwide providing local support and practical help to people with MND and their carers.

www.mndassociation.org/branchesandgroups

Association visitors (AVs)

AVs are trained volunteers who provide one-to-one local support to people affected by MND. They can support people affected by MND in person, by telephone or by email or through support groups.

www.mndassociation.org/associationvisitors

We value your feedback

Your feedback helps improve our information for the benefit of people living with MND and those who care for them. Visit www.smartsurvey.co.uk/s/mndprofessionals or email your comments to infofeedback@mndassociation.org

If you would like to help us by reviewing future versions of our information resources, please email us at infofeedback@mndassociation.org