

Voice banking for motor neurone disease

Over 80% of people with motor neurone disease (MND) will experience slurred, quiet or complete loss of speech. 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*

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 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 sound similar and should be recognisable to family and friends.

People voice bank for different reasons. Many see it as 'insurance' just in case they lose their voice, giving the option of using a synthetic voice similar to their own if needed later. It is important to be aware a banked voice used in a communication aid, and the extra time it takes to communicate with an aid (compared with a conversation using natural speech) won't be changed by using a banked voice.

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 want to use a high tech AAC system with voice output, this option should not be considered.

Voice banking is not the same as a digital legacy, where someone makes recordings to leave a legacy for loved ones.

How does voice banking work?

The person with MND records a number of phrases that are combined to create a synthetic voice. 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 350 and 3500 sentences.

For someone who is feeling well, in a quiet environment, the process can take around two hours. It may 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.

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.

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.

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.

If progression is rapid or the voice is no longer strong enough for voice banking services, then message banking may be a good alternative. See page 5 – *Message Banking*.

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.

Technology is emerging that may allow for improved voices in the future for those whose speech has deteriorated. See page 6 – *Voice Repair*.

What equipment is needed for voice banking?

Voice banking service

There is a range of voice banking services available. We are not able to make recommendations, but some of the available options are listed on pages 4-5.

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 do not usually have the processing power needed for voice banking, so are not recommended for the recording process. They may, however, be used with the synthetic voice as a communication aid.

Microphone

A suitable microphone is important. This should be a headset model with a USB connection, that 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 made at home, and it does not need to be as quiet as a recording studio to be successful.

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 7 – *Find out more*.

The voice banking process

Depending on the service provider, the process will vary slightly, but follows a similar pattern:

- 1 The person with MND registers with their preferred service provider and pays any required fees either upfront or at the end of the process.
- 2 An initial calibration test will 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 An initial set of screening phrases are recorded and then automatically sent to the service provider for analysis.
- 5 If the recordings 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.

Professional support

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. Professionals may also 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.

Generally the process is very straightforward and the individual companies are helpful if there are any difficulties.

After recording

Once recording is complete, the voice banking service provider will create a synthetic voice. This 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 usually stores a copy of the synthetic voice so 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 more mainstream devices. 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

- 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 advisable to complete the process as soon as possible.
- 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, consider using a friend or relative who has a similar voice and accent to make the recordings.

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/voicebanking

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.

CereVoice Me (www.cereproc.com/en/products/cerevoiceme)

This service currently costs £499.99, which includes a microphone to be used for the recordings. Payment is made up front but will be refunded if the person is unable to proceed beyond the initial trial phrases.

Once the full recording process is started, the costs will not usually be refunded. This product is currently available in English, French, Spanish, Italian and Swedish. The banked voice can be used in most Windows application that use SAPI format files.

ModelTalker (www.modeltalker.org)

This service charges \$100 US Dollars (about £80), payable when the person downloads the completed voice onto a device. It is possible to request funding support from the MND Association for this via the ModelTalker website, by clicking *Support Organisations* under the *Registration* menu when logged in.

Usually 1600 phrases are recorded, but a voice bank can be created using 220 phrases, although the quality may be affected.

The banked voice can be used in the Predictable and ChatAble apps on an iPad/iPhone, on most Android apps offering text to speech, on Mac devices or most Windows applications that use SAPI format files.

ModelTalker is currently only available in English and is optimised for an American dialect. People can be

reassured that they will not sound American in the final voice.

During recording, sentences are rated for quality using a colour coded system. Green or yellow are acceptable quality, and only the furthest left column should be considered for non-American accents, as shown in blue below.

↓ #	↑ A	↑ R	↑ P	Sentence	
5	●	●	●	He had rides in the wheelbarrow.	🔊
4	●	●	●	Behind them was the dark forest.	🔊
3	●	●	●	He couldn't even find a place.	🔊
2	●	●	●	The grizzled old fellow could see on one side.	🔊
1	●	●	●	I say this to my friends.	🔊

My-own-voice (<https://mov.acapela-group.com>)

This service charges €99 (about £88) per year for using a banked voice, or €999 (about £892) for an unlimited time licence. If applying for funding via the MND Association, the cost of the unlimited time licence reduces to €100 (about £89). Fees are payable when the person downloads their completed voice onto a device. 350 phrases are required for recording.

A person can bank their voice in any of ten languages (English, French, Spanish, German, Italian, Swedish, Dutch, Danish, Norwegian and Arabic). The banked voice can be used in Predictable and Proloquo4Text apps on an iPad/iPhone, on most Android apps offering text to speech or most Windows applications that use SAPI format files.

VocaliD (<https://vocalid.ai>)

This service costs \$1499 (about £1200) with a \$29.99 (about £22) fee to 'preview' the voice before purchasing. VocaliD offers 'vocal legacy' (voice banking) and 'bespoke voice' (voice repair) options. Vocal legacy usually requires around 1000-3000 sentences to be recorded.

Recording is made by reading portions of online books that the user can choose, based on subject and reading level. The banked voice can be used in MyVocaliD or TouchChat for iOS, MyVocaliD for Android, and Tobii i-Series or PRC Accent for Windows.

For information about the 'bespoke voice' service please see *Voice Repair* on page 6.

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.

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.

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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 £480.

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.

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, that 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.

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

This system helps to store and organise recorded messages until they are needed. The stored messages can be downloaded for use on an appropriate system. This system is free for personal use.

Voice repair

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. Fewer phrases need to be recorded (probably less than an hours of recording); these are then combined with a similar sounding voice previously recorded by the service.

The resulting synthetic voice will be a blend of the two voices and in effect will offer a synthetic voice that is improved over the person with MND's voice recordings.

There are currently two online services that are working with this technology, detailed below.

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Speak Unique (www.speakunique.org)

This is a research project based in Edinburgh. Study results are being analysed with a view to develop this into a clinical service.

VocaliD Bespoke (<https://vocalid.ai/individual/bespoke>)

This service has so far collected 26,000 healthy voices from around the world. The cost for this service is currently \$1499 (about £1200) with a \$29.99 (about £24) fee to 'preview' the voice before purchasing. The synthetic voice can be used in MyVocaliD or TouchChat for iOS, MyVocaliD for Android, and Tobii i-Series or PRC Accent for Windows.

Other options may be available. Costs or services offered may change at any time.

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 voicebanking 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.

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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 the 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

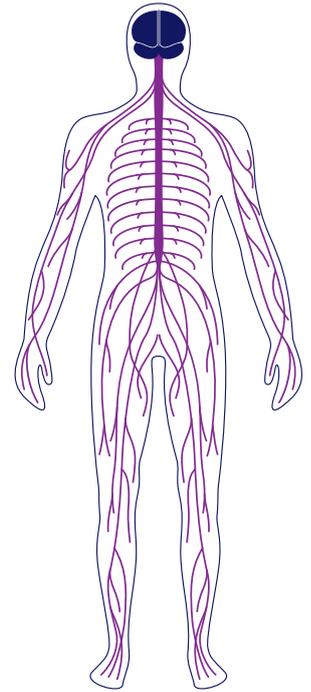
We value your feedback

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

About MND

- MND is a fatal, rapidly progressing disease that affects the brain and spinal cord.
- It attacks the nerves that control movement so muscles no longer work. MND does not usually affect sight, hearing or sensation.
- It can leave people locked in a failing body, unable to move, talk and eventually breathe.
- It affects people from all communities.
- Some people may experience changes in thinking and behaviour, with some experiencing a rare form of dementia.
- MND kills a third of people within a year and more than half within two years of diagnosis.
- A person's lifetime risk of developing MND is up to 1 in 300.
- Six people per day are diagnosed with MND in the UK.
- MND kills six people per day in the UK.
- It has no cure.



Would you like to find out more?

Contact our helpline if you have any questions about MND or want more information about anything in this publication.

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0808 8026262
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www.mndassociation.org/professionals

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