

Tuning into the sound of your implant



Cochlear implants provide hearing sensations by electrically stimulating nerve fibres within the cochlea (or inner ear). It is important that the right amount of electrical stimulation is used or the noise heard might be too soft or too loud.

'Mapping' is the term given to the process of measuring the amount of electrical current delivered to the cochlea by the implant. It is the process that ensures the patient receives comfortable and useful sounds.

Explanation of mapping terms

Electrodes

The electrodes are the metal rings on the end of the implant that is positioned inside the cochlea. Stimulation of different regions of the cochlea (via different electrodes) generates different frequency (or pitch) sounds for a person. There are 22 different electrodes within the cochlear implant.

Threshold levels

A T-level is the amount of electrical current needed for a person to first hear sound. T-levels set the minimum stimulation level for each electrode.

Comfort-levels

A C-level is the maximum amount of electrical current that does not produce uncomfortably loud sounds. C-levels set the maximum stimulation level for each electrode.

Dynamic range

The dynamic range is the difference between C and T-levels. If the T and C-levels are set accurately, stimulation on all electrodes should produce hearing sensations in the range of soft to (tolerably) loud.

Pulse rate and pulse width

The cochlear implant sends out tiny electrical pulses to the nerves in the cochlea using electrodes. Some peoples' nerves react better if stimulated quickly (high pulse rate) while others prefer to be stimulated more slowly (medium or slow pulse rates)



The mapping process

The initial mapping appointment will take place between two to four weeks following your operation and you can expect the following:

- Initial programming ('mapping') of the sound processor
- Receive sound processor and accessories
- Introduction to functioning of the sound processor
- Further information for post-operative care

Many people find that the 'switch on' of their cochlear implant is not what they expected. Often the sound is reported to be just beeps and buzzes and nothing like speech at all. This is very common and it can take a few weeks for the sound to become speech-like. During this time, the volume of the sound will be turned up slowly to allow you to adjust to the new sounds.

Sometimes people can wonder if they will ever learn to make sense of these noises they are hearing. It can take several weeks before a person feels comfortable with the sound the implant provides. The most important factor is to keep wearing the sound processor. The more the sound processor is worn, the faster the brain will learn to use the sound.

The CP900 sound processors have the capability to record and store information about the use of an individual processor. This process is called 'data-logging'. The recorded information includes time 'on air', program usage and the type of acoustic environments where the processor is used (eg speech in a noisy environment).

Data-logging information can be viewed by the recipient and the clinician together to prompt helpful discussion about usage and to ensure the processor is working optimally for the recipient across different sound environments. This information can be only be viewed through the programming software used by the audiologist in the clinic.

If you would like more information about this feature and its use, please ask your clinician.

Once the settings in your sound processor (your Map) are stable, there are different options as to the programs that can be saved in to your processor.



Sound processor programs

The following information has been provided as a guide to the programs available in your sound processor:

Program Type	Description	Program Location
SCAN	An automated program which changes the listening program automatically, based on the environment you are in, so you don't have to think about it. Suitable for: All situations	
Everyday	Suitable for: All situations	
Noise	Makes background noise more comfortable. Microphone sensitivity may be automatically adjusted based on the noise in the surrounding environment. Suitable for: All situations	
Focus	Reduces background noise from the surrounding environment. Employs a directional microphone which will automatically adjust its directionality depending on the presence and type of noise. Suitable for: Noisy environments when facing the person who is talking.	
Music	Suitable for: Listening to music either live or via an audio source eg iPod.	
Telecoil	Suitable for: Standard landline telephones. Mobile phones will require an accessory cable. Public areas where an induction loop is available eg cinema or public hall.	



Regular review appointments

To maintain optimal functioning of your sound processor, it is highly recommended that all recipients attend regular mapping reviews. In the initial 12 months following surgery, frequent mapping appointments will be required at 2 weekly intervals for the first 6 weeks, then at 3, 6 and 12 months. Following this the standard regime below should apply.

Children under the age of 3 years:

Medical and Mapping reviews, every 6 months

Children over the age of 3 years:

Medical and Mapping reviews, every 12 months

Communication reviews at 1, 2 and 3 years after surgery, at 5 years of age.

Adults:

Mapping reviews, every 2 years and Medical reviews as required.

It is important for all recipients to bring all sound processors to every mapping session to ensure that backup processors are up to date with the current program.

Who to contact if you have a concern

For any concerns, please contact:

Cochlear Implant Clinic

6th Floor, Smorgon Family Wing

32 Gisborne Street

East Melbourne VIC 3002

Ph: 03 9929 8624

For medical concerns, please visit the Eye and Ear Emergency Department or call 03 9929 8666.

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