

# A TINNITUS CASE STUDY

The case of a 45-year-old man requesting information on tinnitus and hearing devices.

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A 45-year-old man contacted me in 2015, requesting information on tinnitus and hearing devices. He said he had sought audiological management for his tinnitus, but felt the only solution offered was high-end hearing devices which were outside his budget. At the initial consultation, Charles (not his real name) reported feeling overwhelmed and confused with the range of hearing aid options, pricing and the HSP program. He reported having travelled 2 hours for this appointment as he wanted a third opinion. My test results (Figure 1) were consistent with previous audiograms supplied to me.

This article covers the audiology and patient journey over a period of initial fitting and follow up 12 months later. It is a clinical reflection on my part that even though these patients can appear difficult to work with at the outset, we as clinicians have incredible skills in rehabilitation and communication and can get fantastic results and positively change a client's outlook on tinnitus and hearing loss.

## INITIAL CONSULTATION

Charles was an ex-pilot, currently

working in a "closed room" office-based job. He reported noise exposure as a pilot, played in a band and attended many gigs that were "way too loud". He had undertaken annual Civil Aviation Safety Authority (CASA) hearing tests to ensure his hearing met the requirements as a CASA pilot. He reported having surgery for a deviated septum, but no other ear-related issues.

Charles reported intermittent tinnitus over the past two years, and six weeks before the appointment he said "the tinnitus just hit me". Prior to this he was able to ignore the effects but now the tinnitus had become debilitating in both his work and social environments. The tinnitus became worse at night, with Charles often woken by the tinnitus and requiring medication to get back to sleep. The lack of sleep affected his concentration at work and by late afternoon he reported "the tinnitus just does my head in towards the end of the work day." He described the tinnitus as varying in volume depending on the time of day, his anxiety and stress level, and that the "right seems worse at 6kHz." Of his own accord, Charles had downloaded an Oticon app to listen to sounds via headphones to help mask the tinnitus, as in 2015 Oticon did not have direct streaming devices.

Charles also reported many communication difficulties and became most stressed by his hearing loss in background noise. He had significant difficulty with high frequency voices, particularly his wife and children. Both mobile and landline phone calls were problematic, and he often used the speaker phone. Work colleagues had become aware of his hearing loss and during meetings a person was asked to scribe the minutes for him to review later.

Charles researched hearing loss, tinnitus and hearing aids on his own accord. I asked him to explain what he had investigated and understood, to ensure we were both on the same page. He was relieved to hear that someone wanted to understand his needs and not to dictate what was required. After a long discussion on price, styles and features, we decided to proceed with the fitting of Oticon RIC hearing aids with a tinnitus program, open domes and a low power receiver. We discussed that it was a journey and that my previous clients with significant tinnitus issues often required more appointments. I gave him the opportunity to see a clinic closer to home, but he felt very positive with our relationship and was looking forward to the hearing devices.



Figure 1/ Audiogram

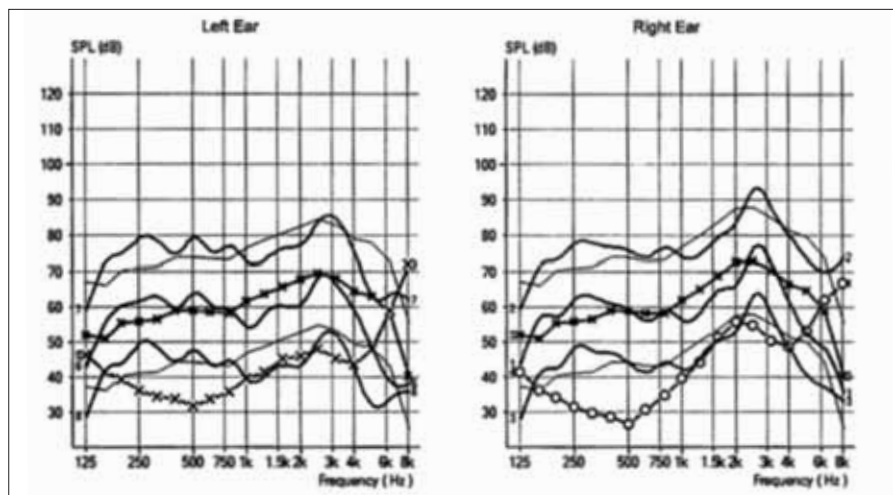


Figure 2/ LSM curves for each ear with devices set to NAL-NL1.

### FITTING APPOINTMENT

The fitting appointment was surprisingly straightforward. I explained to Charles that although the device had the option of four programs, I would only set up two: one with the microphone for amplification and one for tinnitus.

**Program 1:** Amplification only. This was set to manufacturer targets for NAL-NL1 and verified with Live Speech Mapping at three input levels (50, 65 and 80dB SPL) with an excellent match to targets (Figure 2).

**Program 2:** Microphones + Ocean Sounds with "auto-steering". The steering function automatically lowers or increases the tinnitus relief sounds when environmental sounds change. This program took time to set up, as I had to find his subjective tinnitus level – both the perceived loudness and pitch. Once found, I needed to find the "mixing point", the point at which his preferred nature-like sound just matched the tinnitus and met his individual needs. The effect we wanted was that Charles could just hear his tinnitus with the masking noise. This would provide a habituation effect rather than full masking out of the tinnitus. The ocean sound was a client preference over many masking sounds available on the hearing aid.

In 2015 we did not have direct streaming to hearing aids via Bluetooth – many of the volume and program adjustments made by the client were via on-board hearing aid controls. We applied to the DVA RAP (Rehabilitation Appliances Program) for a Remote Control Streamer to enable easier management of controls and Bluetooth streaming for mobile phone calls.

### CLIENT EVALUATION

Charles was committed to managing his tinnitus and provided a daily diary of his first experiences with the devices. The tinnitus program was definitely helping him and he didn't get the 3pm attack. He liked the "auto-steering" in most situations, especially in the train. His wife commented he was more relaxed.

### REVIEW APPOINTMENT

Charles reported wearing the hearing aids on a full-time basis and again commented that he did not get the "3pm tinnitus at work effect." He loved the sound of the hearing aids and realised the second program was useful for some periods of the day but wanted greater control. He was thrilled that his hearing felt almost normal and that his family and work colleagues noted the improvement immediately and his confidence had changed. His wife commented that he was so relaxed and able to sleep most nights without medication.

At this appointment I set up the Remote Streamer and he was "blown away" by the streaming to the iPhone giving him binaural hearing and the ability to stream music. I set up two additional programs, one a tinnitus noise program without auto-steering to use when he wanted to relax and the other a tinnitus noise program only, without any amplification, which he used to help getting back to sleep.

Charles phoned me a week later and told me his life had instantly changed. He had more of a connection to his friends, family and work colleagues and his stress and anxiety levels had reduced. He now had a program to help all situations that exacerbate the tinnitus. He was much more in control.

### CONCLUSION

I followed up Charles at his annual appointment 12 months later and he reported that he uses Program 1 (amplification only) about 90% of the time and only on occasions uses the in-built tinnitus programs. He found the programs most useful in the habituation period of getting used to the change in tinnitus and now the amplification was sufficient to keep the tinnitus controlled. This is the optimal outcome for a tinnitus client.

Hearing devices today offer a range of complex programs which enable habituation, combined with a baseline program that provides amplification to address basic communication needs.

**The real benefit is giving the client control over the tinnitus.**

It is important to consider the range of different situations where they have the greatest difficulty (quiet relaxation times, going to sleep, travelling, etc.) As the client learns that they can manage the tinnitus with the help of the device, they become more confident and relaxed and wean themselves off the tinnitus management programs, relying only on the base program to meet their overall communication goals. Ultimately, the solution for tinnitus is generally amplification to reduce listening effort and stress but there is a real advantage in including the stepping stone of dedicated tinnitus programs in the initial treatment plan which will support the long-term outcome. ●

# HEARING SERVICES PROGRAM

### ROADMAP FOR HEARING HEALTH

The Department of Health is working closely with the Hearing Health Sector Alliance to implement the Roadmap for Hearing Health. The Roadmap's 144 action items cover six domains: Enhancing Awareness and Inclusion; Closing the Gap for Aboriginal and Torres Strait Islander Ear and Hearing

Health; Preventing Hearing Loss; Identifying Hearing Loss; Providing Support; and Enhancing the Sector's Workforce.

### AUSKEY TRANSITION TO MYGOVID

The Australian Taxation Office (ATO) is transitioning AUSkey to MyGovID with the initial roll-out expected at the end

of March 2020. The Department of Health is currently engaging with the ATO to ensure this change provides minimal disruption to our Hearing Services Program providers. The department will be sending out notices to all providers in coming months to explain the changes and how to transition to MyGovID. ●