







- "Hearing aids certainly allow me to hear more than I would otherwise. But the quality is poor."
- "As a live performer I wish there was an aid(s) I could use that would make sound more natural and without the "whistle". If I play without aids my hearing I miss detail of others, i.e. cues. If I wear aids, I hear more but get sometimes unnatural feedback and distortion. "Devil & Deep Blue Sea" analogy."
- "Without hearing aids I'm unable to hear instruments such as violins, with aids the violins are distorted."

Rated helpfulness of HAs (1 Not at all helpful to 10 'Very helpful') in recorded and live music contexts (N=851) 25 REC bercentage of responses in each ratingfor 20 contexts 15 nusic 10 and LIVE REC LIVE 6.81 6.45 N=851.Z = -6.461.p<.001











## Audiologists' strategies • "...switching off all adaptive parameters, lowering MPO, turning off feedback measures, ensuring omnidirectional microphone..." • "increase frequency range, turn off any frequency compression, reduce standard compression, remove aggressive feedback management, raise MPO levels marginally" • "Tend to remove adaptive features. Increase MPO. Increase low frequency amplification. Reduce compression"







## Programming hearing aids: General hearing aid settings

- alu settiligs
- Mould selection keep open if possible.
- Give a volume control with as wide a range possible, and ensure that hearing aid user knows how to use it.
- Keep volume control separate for left and right aids.
  Offer a mute button for control of loudness in live
- settings/performing.
- Verify fitting with Real Ear Measurement (REM) as accurately as possible to target.
- Try manufacturer's music program with the following tips:

## Programming hearing aids: Settings in a music program Disable automatic functions Feedback manager and frequency transposition/compression Noise management and wind-noise management Microphone adaptive directionality, and consider selecting fixed microphone directionality

- Base gain on everyday listening program
- Increase Maximum Power Output cautiously
- Look at compression ratios, and select slow-acting compression



# Testimony "It's already changed how I operate just from reading through the leaflet and I will say 'have I looked at this, have I looked at this, and it basically helps me cover everything you know in the one resource to make sure I've done the best for that client who is struggling with that music issue." [Audiologist] "The quick reference stuff is really helpful so just as a baseline if audiologists have only got five minutes and think well this really nice quick reference for them to have." [Head of NHS Audiology Department] "I think patients feel more empowered when they have leaflets and they can go away and do their own reading and just consolidate what we ve talked about in the appointments" [Senior Audiologist]

## Summary

- Listening to and performing music has significant health and well-being benefits, esp. for older adults (cf. Macdonald et al., 2012)
- HL causes perceptual deficits that can adversely affect music appreciation and negatively impact musical activities
- HAs enable music appreciation, but can cause unwanted artefacts (e.g. distortion) and sound quality is poor.
   'Devil & Deep Blue Sea' analogy
- Clinical strategies can be used to improve musical experiences, though more systematic research mapping outcomes is needed
- HAfM resources provide counselling and programming tips which audiologists have found helpful
   Revisions necessary to reflect advances in technology and telecare

