

Learn all about the telecoil an invisible but key element in so many assistive listening situations and devices, and get all there is to get out of this critical feature in your hearing aid or CI. How is noise reduction handled in the various make instruments? Why is orientation of the coil important? How to benefit from a loop even if your telecoil is not optimally positioned. How to make your telecoil work with neckloops. What programming options are available with your make instrument or CI processor? Learn what questions to ask of your hearing care provider to ensure the telecoil is programmed properly for your specific needs. Attendees will receive a handout to take to their provider to enhance the telecoil performance and programming. Innovative and easy ways that HLAA members and chapters have used to get their providers on board of the GITHL campaign will be shared.

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My Telecoil Can Do All THAT?

Karen MacLennan AuD – New York

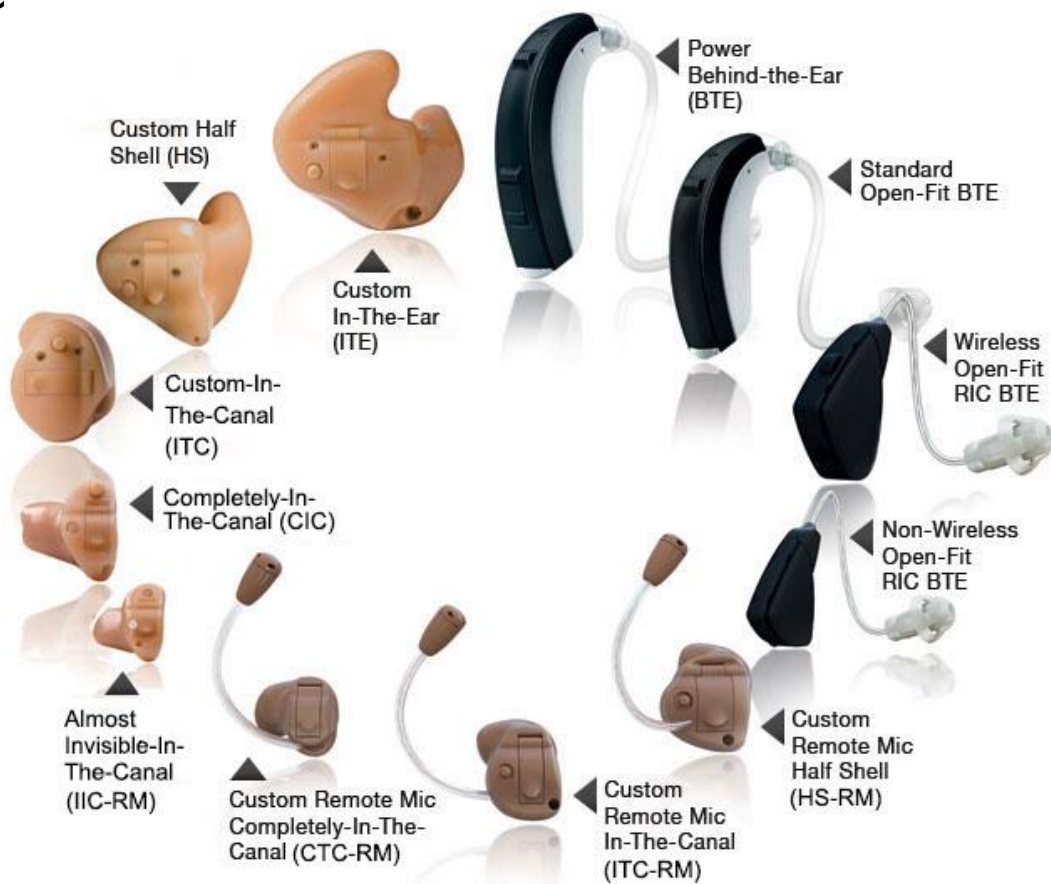
Juliëtte Sterkens AuD – Wisconsin

Richard Atwell - HLAA MI board member

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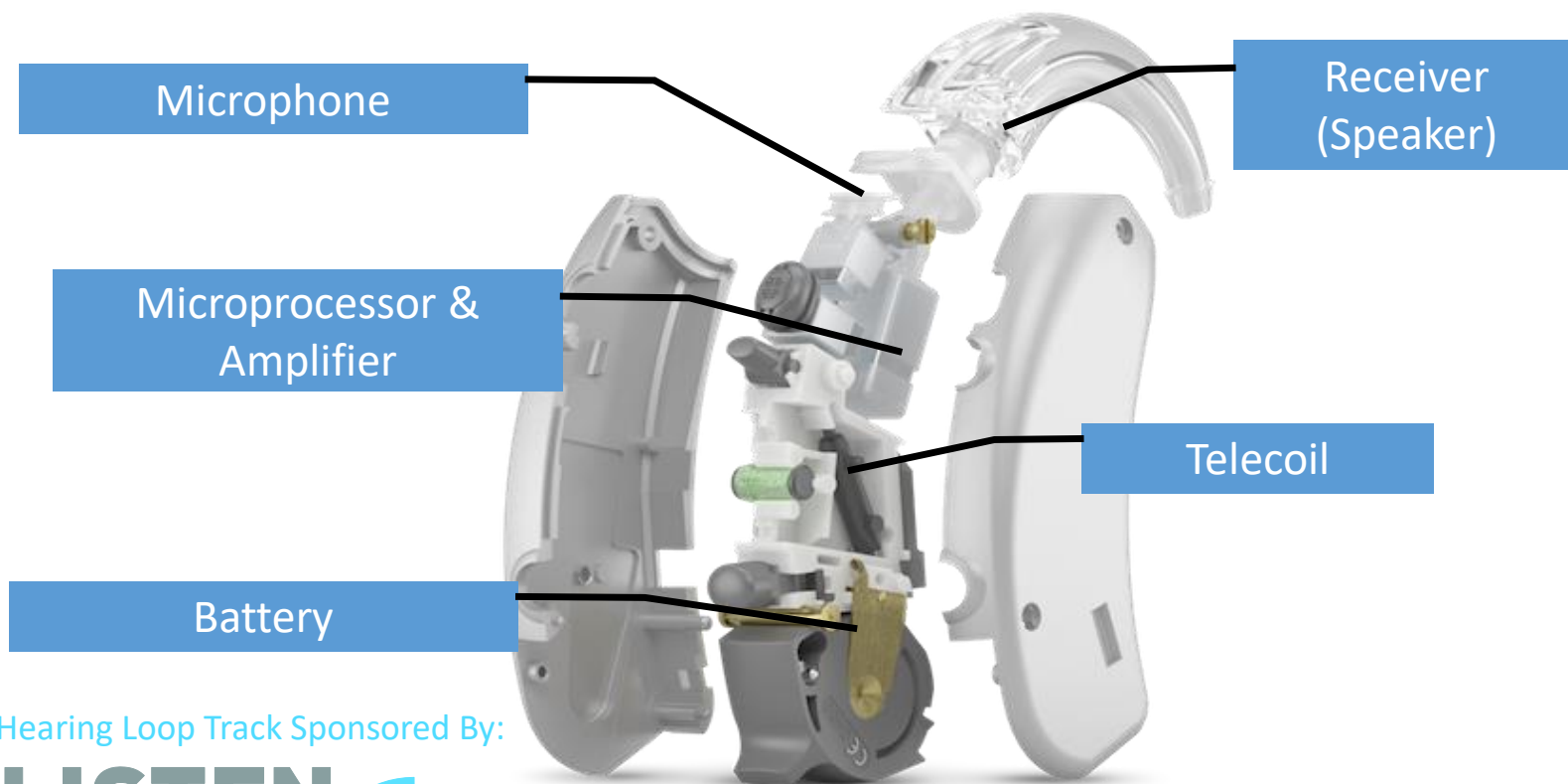
Hearing Aid Basics



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Hearing Aid Basics



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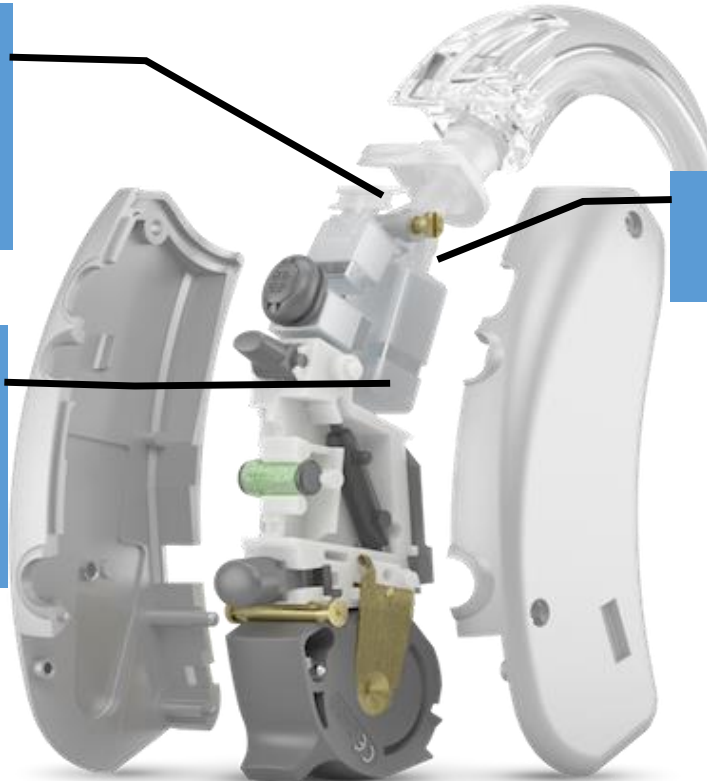


Hearing Aid when hearing aid is set to M (Mic)

Hearing Aid Microphone picks up sound waves that reach your ear

Microprocessor processes sound for your degree and type hearing loss & Amplifier

Sound Output to Ear-Canal



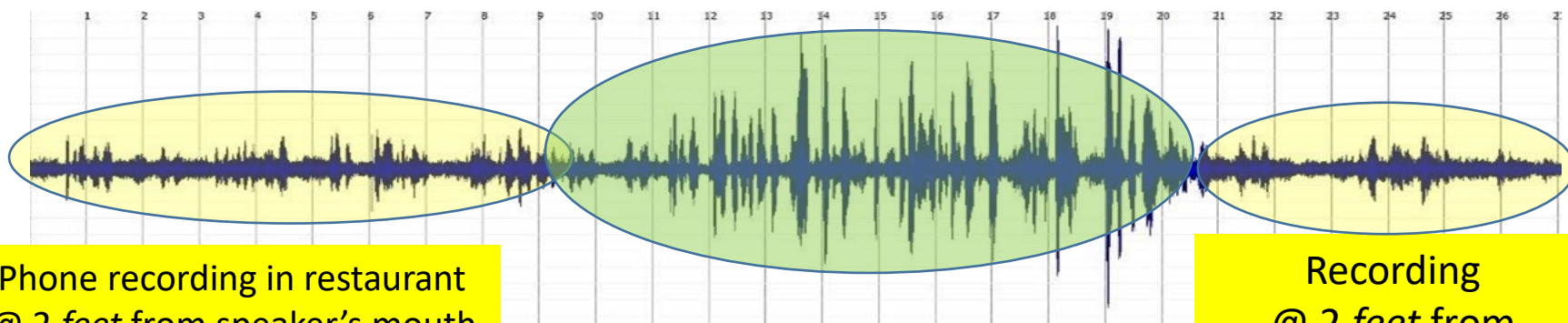
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But...Quality of Sound Out depends on Quality Sound In

Speech is degraded by **reverberation** (think stone cathedrals), **background noise** and **distance** (especially the high pitches or consonants do not travel well...)



iPhone recording in restaurant
@ 2 feet from speaker's mouth

iPhone recording in restaurant
@ 2 inches from speaker's mouth

Recording
@ 2 feet from
speaker's mouth

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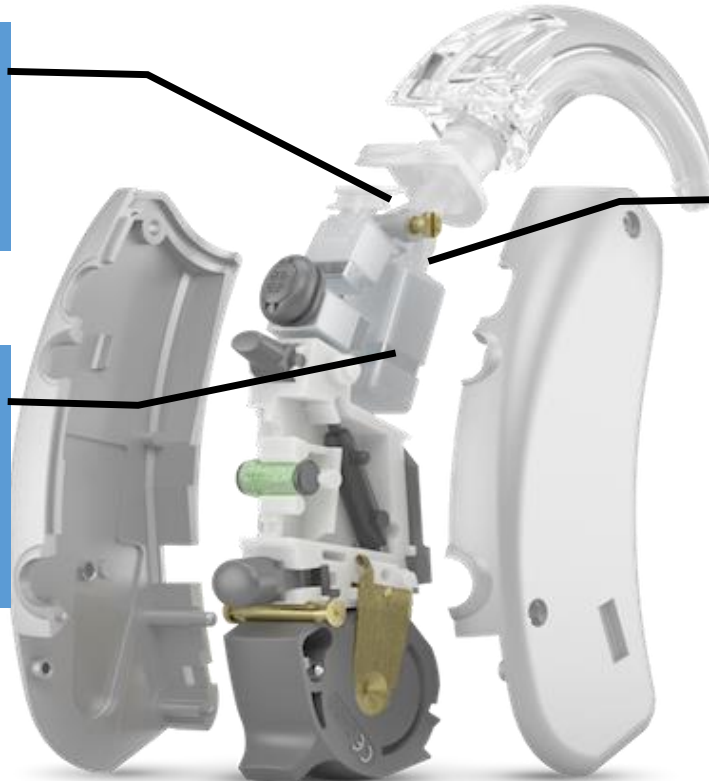
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Hearing Aid when hearing aid is set to T (Telecoil)

Hearing Aid Telecoil picks up **magnetic waves** that reach your ear

Microprocessor processes sound for your degree and type hearing loss & Amplifier

Sound Output to Ear-Canal

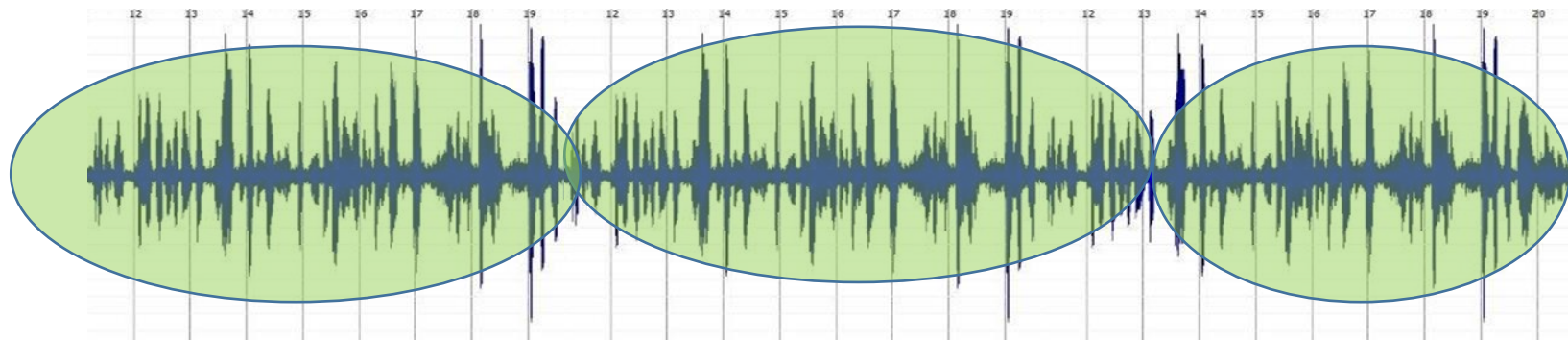


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Using your telecoil ensures there is NO degradation of sound – in a loop you hear as if your mic is a mere inches from the mouth of the speaker



Hearing in the loop in the front row

Hearing in the loop in the middle row

Hearing in the loop in the BACK row

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The 3 P's

Your Audiologist needs to ensure the telecoil is

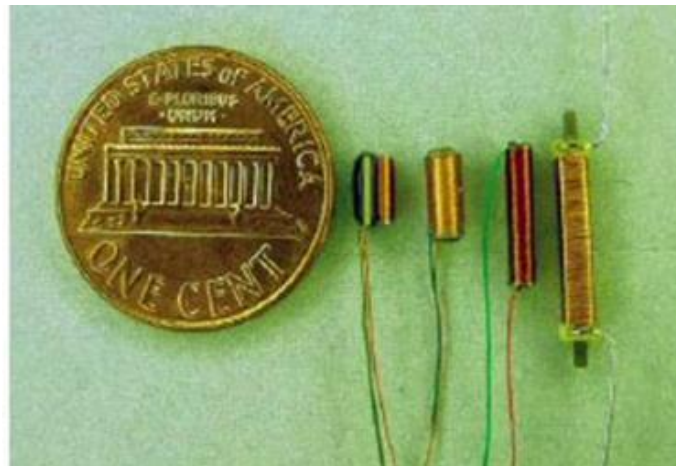
1. Positioned properly (especially in custom devices)
2. Programmed correctly
3. And ensures you are Proficient in its use

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1. Telecoil orientation matters!

- Horizontal is *thought* to be better for on the phone
- Vertical is best w/ hearing loops and neckloops
- Because you cannot have it both ways...GO Vertical



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1. Telecoil orientation matters!

- Demand tubing (or wire) is not too long (or too short.)



If your telecoil is misaligned by
45° = modest 3 dB loss
60° = 6 dB loss (-10 dB = half the loudness)
90° = No signal/ you will hear nothing
if you are in a perimeter hearing loop

YOU will hear OK if in a phased array loop
Because in a phased array loop there is
a vertical and horizontal magnetic signal)

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Image © C. Compton-Conley, PhD

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What to do if your instruments have a horizontal T-coil?

(Mostly an issue with custom in-the-ear instruments, some Starkey make instruments, and the Cochlear N5 and N6)

- Sideways head movement makes a loop sound louder
- Try sitting around the perimeter of the room (above the wire) that's where the magnetic signal orientation is more horizontal
- Ask your provider if a streamer or remote control is an option
- Use the Cochlear Loop Booster (ask for my demo unit)
- Complain to the MFR directly (ask me for names to contact)



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2. Telecoil programming matters!

- Your telecoil program has to match that of your microphone, in order to sound good to you
- Your audiologist needs to verify this with real ear testing or an electro-acoustic testbox test
- Your audiologist needs a loop in the office to try
- Teach you how to access the program(s)

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2. Telecoil programming matters!

Why do some telecoils buzz when activated?

- If you turn on your telecoil (*whether in a loop or not*) your hearing aids/CIs are in “search” of a signal. If there is none – it will automatically turn up the volume – causing you to hear a soft buzz.
- Know that this “buzz” has even happened outside in a field – whether there is a loop present or not
- Audiologists call this WDRC (Wide Dynamic Range Compression) which is good for understanding soft speech sounds, while in (or out of a loop) on T it may cause you to hear a soft buzz. This kind of soft buzzing has nothing to do with the working of the loop

If the buzz is annoyingly loud – it could mean two things:

1. Your T-coils could be set too loud in the low pitches – ask your audiologist to verify the settings
2. There is EMI (Electro Magnetic Interference) in the building that has NOTHING to do with the settings in your instruments. EMI needs to be fixed.

Good/trained installers verify for EMI – a topic in the lecture McKinley/Thunder, tomorrow

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2. Telecoil Programming Matters!

Know the different T-coil programs available to you

Setting	What it means	Advantages	Disadvantages
T-only	Telecoil on, Microphone off	You will hear <u>only</u> what's coming thru the loop or ALD; least background noise pick-up	You cannot hear/monitor own voice or hear people seated nearby (Can be isolating)
M+T	Telecoil and Mic both on	You hear through the loop or ALD <i>and</i> your HAs/CIs: Hear own voice + seatmate's	Background noise pick-up can be bothersome
Auto -T	Automatic Telecoil	Hearing switches automatically to T, when you hold HA compatible phone up to ear.	Will not work with a hearing loop or other ALDs

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2. Telecoil Programming Matters!

Many users benefit from two telecoil programs

- T only program as well as an M+T setting
To get it right – more than one visit may be needed
- If you own Cochlear product you are able to customize the M+T mix via the remote



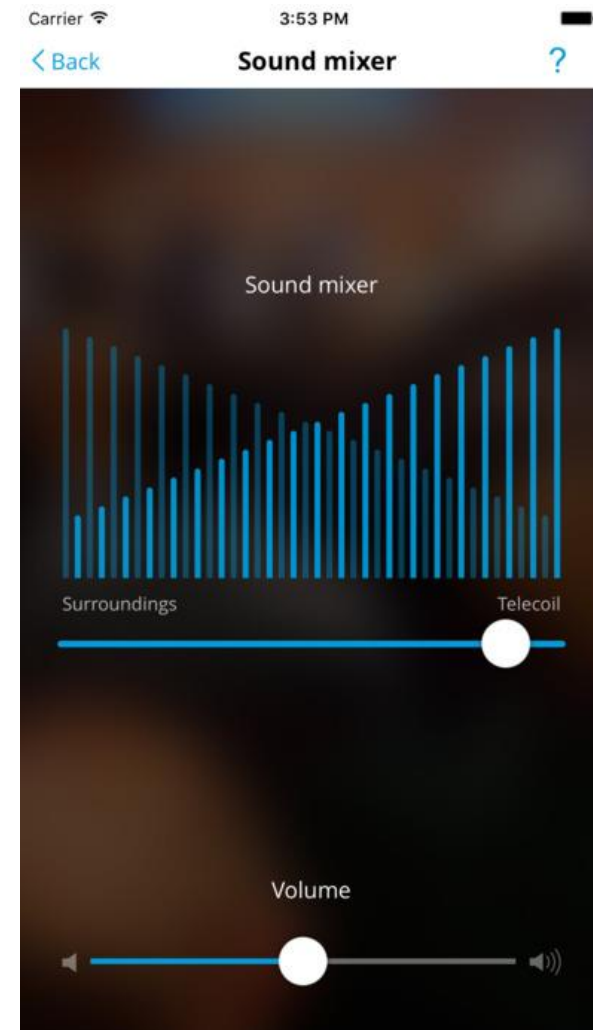
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2. Telecoil Programming Matters!

Many users benefit from two telecoil programs

- If you own the new Widex model “Beyond” – use the phone app ‘Sound Mixer’ to vary the M+T ratio
- If your instruments don’t have a mixing feature – write the MFR and demand greater flexibility



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Oticon Streamer



GN Resound Mic



Widex FM-Dex



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One way to raise Telecoil awareness in the community

Next up: How Richard Atwell & HLAA members in Kalamazoo tackled this



Telecoil

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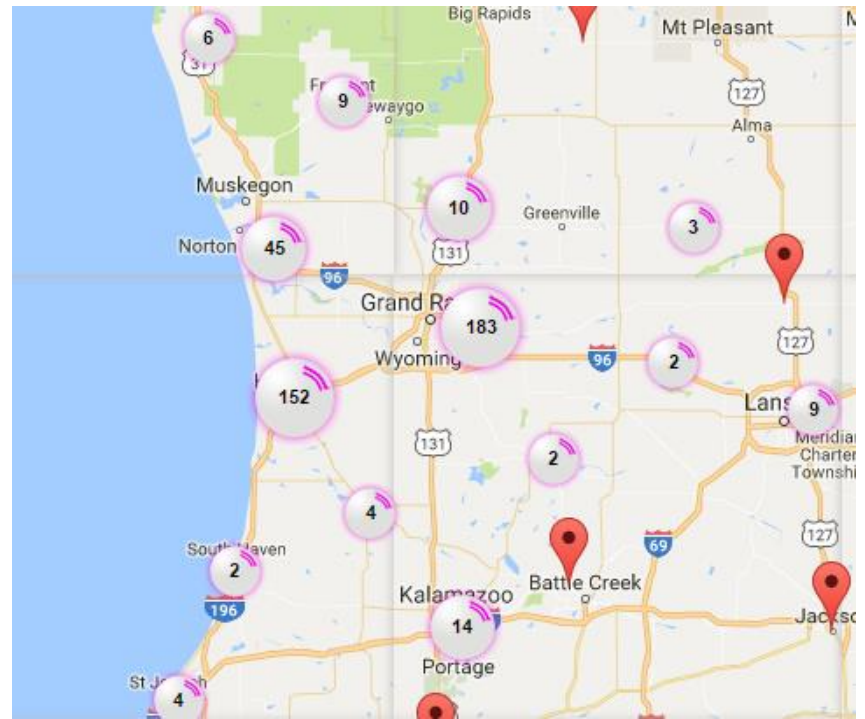
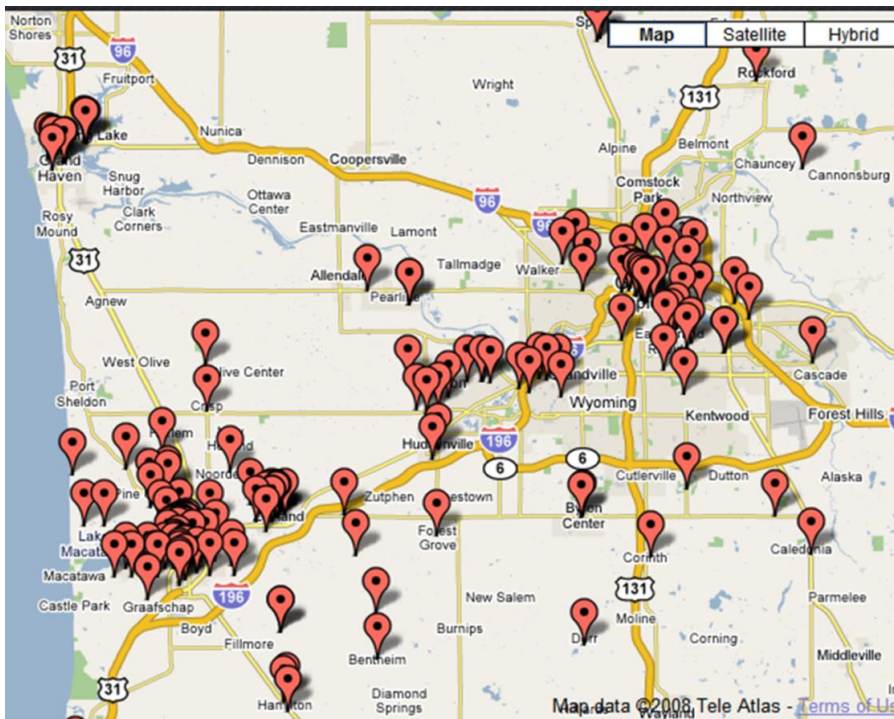


3. Take the time to learn about your Telecoil programs

- Ask for directions in writing
- Do not hesitate to suggest to your audiologist/HHP to contact the manufacturer's audiology department
- Know how to activate the telecoil
- Insist on an in-office demonstration

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Let's Loop Kalamazoo!

and Battle Creek, too!

Who?

Local hearing care providers

What?

Quick meeting about how to easily help our patients advocate for themselves. We will discuss some very simple ways to help our patients get the most out of their hearing aids! There will be light snacks and we will provide you with materials to distribute to patients.

When?

Thursday, October 6, 6:00pm

Where?

Kalamazoo Central Library Board Room
315 S. Rose Street

Why?

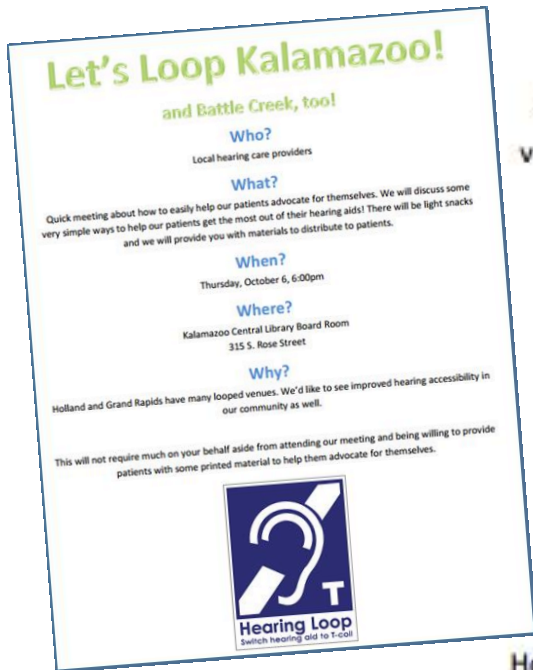
Holland and Grand Rapids have many looped venues. We'd like to see improved hearing accessibility in our community as well.

This will not require much on your behalf aside from attending our meeting and being willing to provide patients with some printed material to help them advocate for themselves.



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Telecoil Specifics by MFR

- On your jump drive – find slides that give more telecoil specifics on the following make devices:

Oticon, Widex, GN ReSound, Med-El, Advanced Bionics, Cochlear, Siemens/Signia, Unitron, Phonak and Starkey

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Phonak T Coils

- BTE - Vertical or near Vertical
- CIC (anything goes with orientation) Can't be specified.
- Phone T Coil + Mic, "Public" T Coil + Mic or both
- Default T Coil + Mic - **T only** is an audiologist adjustment
- T Coil and Mic have matching gain/frequency response (**but should always be verified**)
- Auto T Coil Mic for phone, vol is adjustable via remote, vol button, or App
- T Coil + Mic Ratio can only be adjusted by the hearing healthcare professional
- App requires use of a streamer

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Widex T Coils

- BTE - Vertical or nearly Vertical
- Not available inside CIC – though you can use a steamer/mic with T-coil
- T Coil + Mic, or T-coil only –
- T Coil and Mic have matching gain/frequency response **(but should always be verified)**
- App allows user to vary mix of M vs. T ratio
- No streamer required to stream sound from iPhone
- Cannot set one instrument M+T while the other is set to T

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Med-El T Coils

- In all processors (Sonnet or Rondo) - Vertical or nearly Vertical
- Programs include T-only or M+T
- M+T mixing ratio is always fixed at 50%-50%
- User can opt for 4 (!) T-coil, and 4 (!) M+T programs
(Don't know why anyone needs a total of 8 T or M+T programs)
- To switch programs you need a remote control
- Currently cannot adjust processor by an App on smart phone

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Siemens/Signia T Coils

- Available in all instruments except new Made-for-iPhone “Pure 13”, and CIC and IIC models
- Positioned - Vertical or nearly Vertical – according to company audiologist – not 100% sure
- Company audiologist did not know if Mic and T programs are balanced
Verification by the provider is therefore a must
- Programs include T for Loop, M+T Loop and T for phone
- Default on M+T has the mic turned down -21dB! Audiologist has to adjust
- Small BTEs and ITC require use of Easy-Tek streamer to activate T-coil
- User needs a streamer with Android – but expect a slight delay
- Currently cannot vary the M+T mix on the fly –
A workaround would be to use 2 programs

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Unitron T Coils

- BTE - Vertical or nearly Vertical – all models have T-coil except IIC and miniature BTE
Have to use a streamer to access telecoil in CIC
- Designed to meet the Nordic Telecoil standard
- Programs: T Coil for loop or T-coil for phone or auto-phone
(Loop T = Broad Freq Response, Phone T rolls off >4000Hz, auto phone option cannot be used for in a loop)
- M+T mix default is -6dB
- T Coil and Mic have matching gain/frequency response
(but should always be verified)
- T-coil for App allows user to increase or decrease gain (fader is not an option)
- No streamer required to stream sound from iPhone

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Starkey T Coils

- My experience with Starkey Telecoils that they are good in custom products – if vertical is specified at time of order
- In the MFi products “Halo”, telecoil is horizontal and weak, not optimal for loop
- Verification of telecoil program by provider a must
- In standard tube BTEs – telecoils are Vertical or nearly Vertical
- T-coil not available in a remote or streamer
- User cannot vary M+T mix on the fly – needs provider to do so

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Oticon T Coils

- Custom – Requests taken, but space dependent
- New mini RITE will have a T Coil (this is a major change for Oticon) .
- Oticon has multiple T Coil Programs, MT ALD/T ALD/Phone T/Auto T
- T Coil and Mic programs have same gain and freq response (T coil probably has better highs)
Verification should be completed by audiologist
- For non-OPN instruments Streamer has built in T Coil
- T Coils can be accessed via a button, remote or App
- T Coil is adjustable via volume control
- Only hearing healthcare provider can adjust M+T ratios

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GN Resound T Coils

- BTE T Coils are diagonal –
- Custom products have **horizontal** T coils, but orientation can be specified when ordering.
- Two T Coils programs T Coil Loop + mic and T Coil
- M/T ratios are adjusted by HHP except for App users.
- App users can adjust the mic in the M+T program.
- The remote mic accessory – includes a T coil and transmits *direct* to HIs
- M and T programs are not transparent – **Verification (in our opinion) is therefore a must**



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Cochlear (CI)

- The processor telecoil position is “optimized” for telephone use – in other words - horizontal.
- The Cochlear™ Nucleus® Loop Booster is an external telecoil accessory intended for use with induction loops. It will reduce noise and greatly improve telecoil pick up and clarity of sound
- No T-coil only program - use the mixing ratio.

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Advanced Bionics (CI)

- There is no differentiation in T Coils – One T Coils serves all purposes (phone, loops)
- T Coils are vertical
- M/T ratio is adjustable by audiologist only.
- T coil is activated by remote or button.
- Multiple T Coil programs are possible
- M/T ratio can be adjusted to 100% T Coil
- AB does not have an app for their device.

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