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Turning Technology into Access: Auracast Advocacy in Real-World Settings

Presenter: Jill Mecklenburger, AuD

Into today's course Turning Technology into Auracast Advocacies in Real World settings by Dr. Jill Mecklenburger, Principal Audiologist for the Global Audiology Group for GN Hearing. I'm going to ask Jill to go ahead and advance to the first slide in today's course. Our learning outcomes are to describe the core principles of Auracast and how it differs from traditional assistive listening technologies, Identify key public listening environments in your community where AuraCast could meaningfully improve accessibility and communicate the value of AuraCast effectively to patients, families and community stakeholders. It is my dear pleasure to now turn the presentation over oh I'm sorry. And our risks and benefits today.

You can find these in your handout at any time during the course and with that it is my pleasure now to turn the presentation over to Dr. Mecklenburger. Thank you you Dr. McAleure for joining us today. Thank you Melissa. Just thank you for that lovely introduction. As Melissa mentioned, I work in Global Audiology and research and development for GN Hearing and for the last couple of years we've been testing and working with Auracast in our hearing aids and for nearly a year and a half now doing live real world demonstrations in various settings.

And with that knowledge and experience I'd love to share with you as well as guidance on how you too can be an ORCAS advocate in your community. I'm going to turn off my camera now and we'll get into the presentation. So looking back, we've had a really amazing evolution of wireless technology in the last almost 100 years, going all the way back to telecoils which first came around in the the 30s. As you can see, it's a very robust technology that's been around for a long time but nearly almost 100 years old. And telecoils and tele loop systems aren't going anywhere and they they exist side by side along with more current technologies you can see later on.

We had FM come around in the 60s and then Bluetooth which has been around since the 90s. We started to see in 2010 proprietary protocols from manufacturers with Resound being the on the 2.4 GHz

wireless platform. And this kind of paved the way for other technologies that came shortly after such as made for iPhone and hearing aids as well as Asha streaming for Android in hearing aids. And all of this was made possible by Bluetooth low energy. And finally it wasn't until the last several years that Bluetooth Low Energy audio became available which has allowed us to have this opportunity for a brand new type of Bluetooth streaming called Auracast.

And we'll talk about the basics of that if you're not, if you're not familiar with Auracast and where that comes from. So Bluetooth low energy audio, as I mentioned, is a fairly more recent technology from Bluetooth. And what it involves is a new codec called the LC3 or low complexity communications codec. And that's giving better sound quality with lower battery power and lower latency than classic Bluetooth. So that's been a big advancement in this new codec.

This allows for multi streaming, so multiple devices can be connected simultaneously. As opposed to classic Bluetooth which is a one on one technology. As you know, when you pair your phone to earbuds with classic Bluetooth, it's just a one on one connection. Bluetooth LE audio allows for one to many. Then this also allows for the brand new technology known as AuraCast, which is broadcast audio streaming and sharing.

And we'll talk more about that today and how exciting it is and how it's changing the world for everyone, not just people with hearing loss. It's making all of our public spaces more hearing friendly and accessible for everyone. And I mention this everyone because it was designed for people with hearing aids, but it's also available in ear earbuds and headphones. So it's really for anyone who wants to hear better in these environments. It allows you to share audio.

So if you have an Auracast enabled phone, you can share video with family or friends nearby that want to experience it as well. It's really changing the way we're hearing in public places such as transportation hubs, airports and train stations. And also silent screens that you would see at the gym

or sports bar or theaters, museums for tours, all sorts of venues. There's really kind of unlimited possibilities here.

So the way Auracast works is you need an Auracast transmitter and it can be a television. Many of the newer TVs have Auracast built in. You can have an Auracast dongle that goes onto an older television, or a computer can be Auracast enabled. Or you can have a commercial transmitter that we'll talk about later. An Auracast assistant is currently needed, though someday they may not be needed and you might have more of a direct connection.

But currently you need an assistant to pick up the stream and that can be your smartwatch, a smartphone, Even the cases for earbuds we see there's smart cases that have a little display on them that can be an Auracast assistant. And then the receivers, as I mentioned, are hearing aids, earbuds, cochlear implants will have this technology soon, headsets. So really any kind of listening device is going to be able to receive these signals.

So how does it compare to classic Bluetooth? People often ask that and to get a better understanding. So a study was done and this is from Force Sense Lab in Denmark, an independent company that evaluates audio technology. And they did a study comparing the standard Bluetooth codec, which is classic Bluetooth, and you can see that SBC there in the gray bars, and LC3 which is the new Bluetooth low energy codec that we mentioned in the blue bars here. And they measured sound quality with 0 being terrible sound quality and 5 being excellent sound quality.

So to understand this, usually an audio codec is, is used to compress an audio stream at the transmitter and then decompress it at the receiver side. So with this new codec, it's showing a much better sound quality in this study at a lower data rate and 50% bit rate than the standard Bluetooth codec. So you can really see in that graph how it's making such a difference for the sound quality while draining less battery power from your hearing aids or earbuds.

So people often ask too, how does Auracast compare to telecoil loop systems which we know and love and are installed in many venues? So let's start off with the loop system and what are some of the advantages or disadvantages? We know it's a long standing system, it's great for understanding speech, it gives direct access, but only for hearing aids, and a separate tuner isn't needed. But some of the downsides are that loop systems can be very expensive to install. They're only one channel.

It's a mono signal, which is why it doesn't always sound great for music. And manufacturers are starting to get more and more away from having telecoils available in their hearing aids, if you've noticed. So it's kind of limited with hearing aid form factors. Auracast on the other hand, is a stereo system as opposed to mono. So it's a better audio quality.

Also because of that codec that we just talked about, it's great sound quality for music. It has multiple channels. So in the future we're going to see Auracast being available in multiple languages. For example, at a theater, someone can tune in on a different channel if they speak a different language. It's also going to have audio descriptions for people who are visually impaired.

So that's what multiple channel enables a lot more possibilities for accessibility. It's far less expensive than loop systems. And all hearing aid manufacturers will eventually have Auracast hearing aids. That was part of the plan at the beginning when the manufacturers went to the Bluetooth Special Interest Group, or Bluetooth sig, to ask for a new codec to enable this. As mentioned, it's compatible with all Bluetooth LE audio earphones, earbuds and headsets.

And the only potential downsides are that it requires an assistant. However, it's very easy to put that in an application on your phone and not all manufacturers have it yet. We're seeing more and more though, as it's happening moment by moment. We're seeing more manufacturers come to market with Auracast hearing aids, which is fantastic. So some of the frequently asked questions that you, you may

get from, from patients asking about, you know, when will Auracast be in most consumer electronics?

You can go to the Bluetooth website to, to see, you know, every day they're updating more and more electronics that have it. But we're expecting to see 3 billion devices by 2030 which will have Auracast capabilities. Where is it available? A newer feature in Google Maps. If you go into the information in Google Maps about a venue, you can scroll down to the about section and accessibility.

And venues that have Auracast will have that listed under Accessibility. So that's a great way to find it. Also, information on the Bluetooth website will have that as well. ORCAS transmitters are available for purchase for public venues, and I'll talk about that in a few slides. All the different transmitters that now are available, we've seen a proliferation of them in the past year, which is super exciting.

What is the range of the broadcast from Auracast? It's roughly 100 meters, or 300ft from a commercial transmitter. Again, the consumer electronics, you can find that on the Bluetooth website or manufacturer electronic websites. And finally, how will patients join an Auracast broadcast? And that is, as mentioned, through an Auracast assistant, which looks like this.

This is how Resound currently displays the Auracast assistant in their smart 3D app. So it's available on both iOS and Android devices. So the phone itself does not have to be Auracast compatible. You just have to be able to install the app and then it has the Auracast assistant. So the assistant is really acting just as a conduit for the transmission to get to the hearing aid.

It's not going through the phone. So you see in the left image There's a, on the home screen of the app there's a section called Find a Broadcast and when you click on that, it searches and then any available Auracast broadcast in the area will pop up. So very simple, very easy to connect with an Auracast assistant. I mentioned the commercial transmitters and here are just here are some of the main ones that have shown up in the last year, with probably the most popular one being the Lysentek ORI in

Europe they're called Ampetronic, which you may have heard of, and they've been a manufacturer of loop systems for a long time. But there's the ORI system with its receiver and then there's similar devices by a company called Bet Ear Williams AV has one along with their own tuner.

There's a company called Opus that has a system called OR gate and they also have another one which I think is really cool, called the ORA Loop. And this is actually a combination of an Auracast transmitter as well as a telecoil loop. So it kind of covers all bases there. And that would be a great use case for that would be a bank teller or receptionist in a medical office for example, would speak into the microphone and then if the patient, if they had Auracast compatible hearing aids or a telecoil, they could receive that signal. So it kind of is a good hybrid system.

Then the Resound TV streamer, which we launched with our first Auracast ready hearing aid, Resound Nexia, that's an Auracast streamer as well and can be used in a public setting, which we'll talk about in a moment as well.

So now let's get into some real world case examples of Orcastr implementations. And as I mentioned, we've been doing this for a while. And the first one that we did as a company was in Lincoln center in New York City in November of 2024. And when we were planning this, this was around a patient of mine who's a well known composer in New York City. His most famous piece was playing at Lincoln center and he, he asked if we could do an Orcastr demonstration with it.

It involves a silent film from the 20s that you can see going on there and then 186 person ensemble on stage choreographed with the silent film. It's really fantastic. So if you ever have the chance to see it. It's called Voices of Light. But when we were originally talking about it, we were going to use the ORI transmitter, but it actually wasn't available yet at the time they were still testing it.

So we used our TV streamer, and one TV streamer would have covered the range of the whole auditorium. However, we used two just to have a backup, and we had one on a microphone stand on the stage, and the other one we mounted up in the ceiling to transmit this concert. And we had an event where we invited a couple dozen patients with Auracast enabled hearing aids. And some of the responses we got were people were blown away, especially with hearing loss, if they hadn't been able to hear something like the plucking of the cello and the violin. That one user commented, someone else said it moved them to tears.

And it's just an incredible fusion of art and technology. And then from that we had some articles online from people who had attended, bloggers and so forth, talking about just how fantastic the experience was. So the point I'm getting to here is that you can do something like this in your community. We'll talk about that a little bit more later how you can make that happen. We also did another event, this time with a commercial transmitter, because the ORI was available in March of 25 at the Sydney Opera House and a similar event, though more people were invited to and there were more products available at this time.

There were people with sam, we gave out Samsung earbuds, but there were people with Nexia and Vivia hearing aids. And then of course, we used ORI receivers for someone if they had, if they didn't have a hearing aid that was Auracast compatible. So there was. We even had a panel discussion afterwards that was broadcast in Auracast for people to listen to.

So since then there have been many Auracast deployments, as the Bluetooth SIG calls them, all over the world. And here's just an example of a few of them. If you go on the [bluetooth.com](https://www.bluetooth.com) website, you can find many case examples of different theaters and churches and sports arenas that have installed Auracast. So they're coming out more and more rapidly. Every day we're seeing more and more installations.

Most recently, just a couple of weeks ago, I was involved with a project at Frankfurt Airport, which was the first airport in the world to launch OrcaCast, which was super exciting. They're doing a pilot study at two gates for the next few months and collecting data, and then they will begin to install at other gates and eventually the whole airport. So again, here's what it looked like on within the Auracast assistant when you were searching. You can see gate A16 and gate A17 and then connected to gate A16 for the short presentation that was done at the gate. And it was just an amazing, incredible event because as we all know, an airport situation is difficult for everybody, including those of us with normal hearing.

We struggle to hear announcements and especially our patients with hearing loss. So that was the most recent installation. And then another one that was done more recently was a theater outside of Chicago. And we did an event there in November when they introduced Auracast and they were actually the first theater in the whole Chicago area. And now there are others that are following suit.

But I'd like to show just a short little video that was created from this event.

Here we are at the Marriott Theater outside Chicago, Illinois, where they have implemented Auracast broadcast audio as their assistive listening system for their theater. Instead of hearing all the noise around them, they're going to hear the announcers or the producer performers directly in their ears. So it's just going to make a world of difference for these people. When you can hear well, you can relax and enjoy and immerse yourself in the performance. You're not struggling to hear what people are saying.

I am extremely happy that the Marriott has installed this. It was phenomenal and it made a tremendous difference. It was like, wow, it was like normal. This technology really improves the signal to noise ratio during the performance. I turned AuraCast on and off and I was able to hear everything.

Didn't struggle to understand what people were singing or saying. It made a total difference. The beat, the music was normal. I could cry, the music sounded normal. It's actually a new.

It really is what you used to experience. Normally.

Anybody who has trouble hearing in a space like the theater can now have a better experience. And that's what I'm excited about.

So after all of these events, we've completed surveys, we ask things about, you know, how easy was it to connect and did you experience any difficulties. And so part of what you can do if you do an event like this as well is collect data so that you get some outcomes from this. But here are just some of the quotes we got from the surveys. Someone with very severe hearing loss was so excited that they could understand 80% of the dialogue. Another person said it was the first time in 11 years that music sounded like they remembered.

They felt it was very immersive. They were able to follow the dialogue. So just some of the feedback that was obtained, it was mostly all very positive.

So how do you talk about Auracast with your patients and their family members? A common question I get asked the bluetooth.com website. I know I keep mentioning it, but they are a great resource. They put a lot into this. And one of the things they have is an infographic which you can see on the left there.

And what I like to do is just take parts of it and you can either put it into a presentation or print it out and make a little laminated slide for piece of information from that. For example, what is Auracast Broadcast Audio? It's just showing the transmitter and the receiver. Here you can talk more about the Auracast assistant, even separately. This just helps you to kind of really simplify it down.

And they have other statistics that you can talk about, but just basically to kind of explain what Auracast is. Another section, if you pull that out, it talks about the new experiences and what it's doing to help in different, different environments, how it's going to improve their communication.

They also have graphics such as this, which I find really useful. I think it really shows in a great, easy to understand way how Orcast is going to enable better communication in all of these different environments. You know, airports, theaters, lecture halls even. And there are other types of venues which I mentioned, like the museum tour. People have been using Orcast with a little microphone, for example, in those situations.

So really lots and lots of environments and situations where people struggle to hear.

Using some type of signage as well as demonstrating Auracast in your office is a great way to really let people have a hands on experience with it. So this is a sign that we made for our Auracast event at that Marriott theater that we just saw in the video. It was just, you know, kind of simple, easy to use. How do you connect to the Auracast broadcast? It shows on the sign.

And we even made little cards that were the same version of this that we handed out to people because this sign was out in the lobby. So. And we took, we gave them the cards so they could take them into their seats just to remember how to connect. So you can do something like that as well. There you can see the sign in the lobby.

And then the theater itself made signage that shows, you know, they still have their loop, but now they also have an Auracast system. So they had these. Showing these two systems side by side I thought was just brilliant and just a great way to show this is what we have for assistive listening.

So how can you become an Auracast advocate as well as experts? Another, you know, great resource is the Bluetooth website. They have a section if you go to just [bluetooth.com](https://www.bluetooth.com) and go to their section called Auracast. There's an area called for advocates where they have so many great resources for you as an audiologist to be able to pursue this and think of places in your community where you can, where people can benefit from Auracast and ways that you can get involved and approach these venue managers. So they have these advocacy resources, location specific actually they have different checklists and conversation guides and even case studies so you can download these materials and print them out to support in person discussions when you go to the venue.

So they have them for places of worship, stadiums, theaters and universities. And they're going to. This is from a few months ago, so they may even have more now in terms of bars and restaurants or a conference center. Very specific guidelines, as I mentioned, with checklists. It's good to good points too.

And I can recommend from, you know, meeting with venue managers, as we've done when we approached these theaters. You want to talk about as an audiologist, what obviously you're going to talk about what the benefits are to patients, which are huge, but also what the benefits are to the venue. They're going to be known as an accessibility leader in their area. And then you can also show them what some of the similar venue examples are and case studies from other venues, other similar venues. And you can find all of those on the Bluetooth website like I showed you.

They have lots of case studies of many successful installations that have happened already. So again, you know, great resources there. They also have, which I thought was fantastic, they have a PowerPoint presentation deck all about Auracast and it's able, it's available for you to download and you can see they've got, you know, you can put your name on the first slide, but then they also have places where you can modify it to be specific for the particular venue that you're approaching or

speaking with. So it's a great presentation. If you're able to get in there and show them a PowerPoint, you can use this.

And it's kind of all done for you. You don't even really have to have to do much work to put that presentation together.

And again that's available on Bluetooth.com as I mentioned. And finally a great way to get the word out if you're going to, you know, once you've gotten a venue on board and are working with them on doing an installation. And then if you plan to have an event there, which I highly recommend, it's people, you know, any event that we've done has very successful and well received by the communities. But to try to get some media coverage in advance, and these are just some examples. We reached out to local news stations because they're all very interested in new technology.

So I was on a segment in Chicago called Tech Trends where they asked me about Auracast and how it differs from classic Bluetooth. And so we also reached out to local newspapers and they've done articles on it. It's just, it's something you'll find people are very interested in and it's, I think, pretty fairly easy to generate that interest. So with that I'd like to say thank you and ask if there are any questions.

Let's go to the chat. Okay. Someone asked for to repeat the range of orcast. It is 100 meters from these commercial transmitters, or 300ft, which is pretty far. If I've often been asked for places like a big stadium or somewhere that might be larger, a very large music venue, they would have more than one transmitter.

And there are ways to link them so that they can be meshed together.

Another question. Are hearing aid accessories still going to use proprietary protocols? Is the TV Streamer plus from Resound, for instance, going to communicate with, say, Orcast capable Resound

hearing aids? Great question. And the TV Streamer plus from Resound, you can set it in Auracast Mode within the Smart 3D app and you can make it public or private.

So if you make it public, anyone with not just a Resound hearing aid, but anyone with an Auracast enabled hearing aid from another manufacturer or Auracast enabled earbuds can connect to that. So if you wanted to have people over in your home and have it streaming for everyone, you can do that as well.

Do you know on the Bluetooth website, do they list which TVs and computers have Auracast transmitters? They do. They have a whole section on Auracast current Auracast enabled or compatible devices and that's being updated constantly.

Thank you. Yes, we are going to go ahead and wrap. I want to say thank you all for joining us for this Industry Innovations course. Please be on the lookout for other classes this month from all of our wonderful partners here on Audiology online that are showcasing their incredible research and technology. We want to thank you and everyone at Resound for being a part of this program this year.