Empowered Patients, Efficient Practices: Digital Solutions for Personalized Patient Care

Presenters: Jamie Jensen, AuD, Dawn Marsiglia, AuD, Carrie Spangler, AuD, Dina Vazouras, BAppSC (SpPath), MClinAud, MAudA (CCP)

Hi everyone. Thank you for joining today's webinars. My name is Lori Hambrick and I'm a principal education and training specialist on the global education and training team at Advanced Bionics. We applicationreciate you being here for part four of the webinars series empowered patients efficient practices. So far, this series has addressed a lot of great topics, including barriers to cochlear implantation and ideas on ways to overcome them, strategies to get the right patients into your clinics, ideas on how to modify the follow up schedule to make patient management more efficient.

Last week we talked about aim and how it can be beneficial not only in surgery, but also clinically. Last week we also addressed the idea of utilizing early activations to improve efficiency, and we've discussed some AB resource to support you and your recipients throughout their hear journey. Now, if you missed any of the previous sessions, you can access all of the webinarss in this series with the registration link that is shared in the chat. Today's guests will be discussing digital solutions for personalized patient care.

Now, before we really get into the content for today, let's review the goals and objectives for today's session. After this course, you will be able to identify one change that you could implement to improve clinical efficiency, two benefits of using remote programming with ABCI recipients, and two tools or resource that support ABCI recipients after cochlear implantation.

I'd like to go ahead and ask today's presenters to introduce themselves. Doctor Jensen hi, my name is Jamie Jensen. I'm an audiologist and the program manager at the cost cochlear implant program at the Medical College of Wisconsin. I have been an audiologist for 18 years and have worked almost exclusively with cochlear implants during my career and I primarily see adult patients. Thank you Doctor Marsiglia hi everyone, my name is Don Marsiglia.

I am at Johns Hopkins Cochlear Implant center in Baltimore, Maryland. I've been practicing since 1998, so almost 26 years, and I see pediatric through adult patients so twinkle to wrinkle. Yeah, I'm

happlicationy to be here today. Thanks for having me. Thank you Doctor Spangler hi everyone.

I am an educational audiologist in Ohio and I have been practicing for over 25 years and I also have a personal journey with hear loss as well. I was born with hear loss, wore hear aides most of my life until 2019 and I embarked on the cochlear implant journey. So I am a ab bimodal recipient. Thank you and I'll introduce our other presenter for today, Dina Vazouras. Dina is a cochlear implant audiologist, and she's in Australia.

She specializes in adult assessment and rehabilitation. She is dually trained as a speech pathologist and audiologist and combines those skills to assist with auditory rehabilitation training for her cochlear implant recipients. And we'll hear from her later in today's webinars. Now that you've met our presenters, let's get started. Now, earlier in this webinars series, Doctor Gifford and doctor smile provided information about their follow up protocol for CI recipients.

Doctor Jensen, what is your standard follow up protocol for patients at MCW? Sure. So currently we are seeing patients at initial activation, and then we are still seeing our patients for a two week follow up visit. We find this visit to be beneficial for patients, both for improving sound quality as well as helping with patient comfort and confidence with both sound and technology. And then we see patients at one month, six months, one year follow up visit, and then two years post activation.

And then we just see them every one to three years after that two year visit. Great. Thank you. And thank you for sharing your center's follow up protocol. What are some barriers that keep your CI recipients from attending those follow up applicationointments?

So there are a number of factors that can make it difficult for a patient to come in for cochlear implant follow up. One barrier can be transportation. That can either be access to transportation. It also can be comfort for the patient with getting into the clinic. We are located in a big medical center in a city.

Many of our patients are nervous to drive into the clinic. Since it's unfamiliar, they're not used to the level of traffic and parking can be confusing and difficult for patients. Also, being in Wisconsin, we have winter weather to contend with. Mobility and independence can be a factor for follow up. Many of our patients, including elderly patients and younger patients such as children and teens, don't come to their applicationointments alone.

They are relying on someone else to get them to their applicationointments, and then they may also need or want support during the applicationointment itself. Also, being in a big medical complex, it requires a lot of walking to get from parking to the clinic, and that may be difficult for some patients to navigate alone. Time is also a big factor. The number of applicationointments that we require patients to come in for follow up, the time a patient has to take away from work, the time it takes to to get to the clinic, and then costs. Those costs include travel expenses, such as gas or a hotel stay, if that's necessary, the cost of taking time off of work, potentially childcare costs, if they need to arrange that to come into an applicationointment and then medical expenses for the applicationointment itself.

Finally, there are those patients who simply don't feel like they need to come in or don't want to come in for follow up. Thank you, doctor Jensen. I applicationreciate you sharing some of the barriers that your patients face when returning to clinic. For the follow up visit that you shared earlier, you and your colleagues at MCW are conducting a study on remote programming, and remote programming may alleviate some of these challenges that you just mentioned. Will you provide an overview of the design of the remote programming study?

Sure, I'd be happlicationy to. So, as I mentioned, we really feel like that two week follow up visit is beneficial for patients. But we also recognize that there's a potential burden with asking someone to come into the clinic three times within a one month period. So we wanted to look and see if remote programming could be an effective replacement for the in person, two week follow up visit. And then

with that, we wanted to make sure that both clinicians and patients were satisfied with remote programming services.

I don't. Okay. So, for the study, we offered all adult patients being activated with an advanced bionics cochlear implant the opportunity to participate in the study. To date, we have 18 patients who enrolled to have their two week visit done remotely, and then 23 patients have opted for an in person, two week follow up visit. For those patients who did decide to do their two week visit remotely, we got them all set up with the application, everything connected and paired, and reviewed how everything would work at that initial activation applicationointment, and then for the two week follow up visit, whether the person was seen remotely or in person.

We really followed our standard of care, including measuring m levels on all active electrodes. And then at one month, all the patients came back into the clinic. And again, we followed our standard of care, including an aideed sound field test, speech testing, and then any programming adjustment that are needed. Great. Thank you for providing that information.

Giving us an idea of what the study includes, not only looking at what you're evaluating, but also at the programming sessions that were experienced by those participants. What kind of results are you seeing so far? So, when we looked at the age of the patients, we did find a statistically significant difference with the patients opting for remote programming being younger than the patients who chose in person programming. I think there's a couple things to note with this. First of all, some of our patients who opted for in person visit already had pre scheduled other visit coordinated with that two week follow up.

So some of our patients were being fit with their link m hear aidean at the same time as their two week visit was scheduled or had another medical applicationointment that they coordinated. So they were already coming to the clinic. Then some of the patients commented that they just weren't ready for

remote programming at this point in their cochlear implant journey, but they were excited about the possibility for future uses. When we look at our remote programming group, they definitely skewed younger, but we do have a big range of patients who opted to do this, including patients well into their seventies and eighties. I think it's important to think about some things that you can do as the clinician to maybe help your older patients feel more comfortable with remote programming.

So when you have them in the clinic for an applicationointment, get the application downloaded, get their processor and or hear aide paired with it, show them how to use it. If you have time in the clinic, you could even do a quick test session so they know exactly what to expect if you don't have the time. Or maybe the patient didn't bring their phone into the clinic so you could set everything up. You could connect your patient with a B success, and they can provide support with downloading the application, getting everything connected, and the patient comfortable with the technology. And then we always just really encourage our patients to have a family member or a caregiver or a friend available to be with them during that remote programming session.

Doctor Jensen just mentioned that the AB success team is helpful to her and her patients and can provide support to recipients with remote programming. And I just want to be sure to mention that AB has a number of resource available globally. So Doctor Jensen mentioned the AB success team, but I also want to make sure to point out that the names of the teams may vary from region to region, so there may not be an A B success team in your region. However, we have a B staff available to support you and your patients no matter where you are in the world.

So all of our patients who participated in the remote programming session for their two week follow up visit completed a mobile device proficiency questionnaire. And that questionnaire just looks at the patient's comfort with their cell phone technology. For each of the subsets, a patient rating of four or above is considered proficient in that subset or that area. So, as you can see, there's a large range of

comfort with technology for the patients who chose to participate in our study. And many of the people who participated in the study were not proficient in all areas of their cell phone technology.

Okay. And then in looking at patient performance, we compared preoperative speech understanding for both CMC words and AZ bio sentences in quiet to their results obtained at their one month follow up visit, and we really did not see a significant difference between groups for either word or sentence testing.

The data is looking really positive so far. When you're working with CI recipients, how do you decide whether to see a patient in person or to conduct a remote programming session? Sure, I think there are a number of factors to consider when you're trying to determine if remote programming is a good fit for a given patient. First of all, you need to make sure that they have the technology needed. So they need the Marvel CI processor and or the link m hear aide.

They need to have access to a phone or a tablet that can download the AB remote support application and get it paired to their processor hear aide. It's important to note this doesn't necessarily have to be the patient's own device. It can be a friend or a family member's device that will be available for the patient to use at the time of the applicationointment. You need to know if the patient doesn't have the application set up and downloaded, can they do this at home themselves? If not, we found a b success to be a great option for helping patients with this, and then finally the patient needs a stable Internet connection.

And again, this doesn't necessarily have to be at their home. I have a patient who has a very poor Wi Fi connection because he lives in an rv, so he reserved a room at his local library for his remote programming session. It worked great for them, and it was still way more convenient than driving 2 hours into the clinic. Some additional considerations include what applicationointments is your clinic willing to see remotely? And then where will the patient be at the time of the programming session?

The patient's location at the time of the applicationointment is really important because we can only see patients in states in which we have a license. So typically the patient has to be within your state for you to be able to see them, even for remote programming. However, the audiology and speech language pathology Interstate Compact, which is anticipated to be available in 2025, will allow audiologists and speech language pathologists in good standing to applicationly for privileges to practice in other compact member states. So if we look at this map, all the states colored in blue have already enacted ASLPIC legislation. The states in red have pending legislation, and then the states in dark gray do not have legislation enacted.

And there's a link in the chat if you want to learn more about ASLPIC.

When we first started offering remote programming for our patients, the burden of determining if a remote programming was an applicationropriate option for a patient was really left to the audiologist. A patient would contact the clinic either through a phone call or through a Mychart message in our medical record requesting an applicationointment expressing a hear concern, a sound quality issue, and then the audiologist would determine, would remote programming meet the patient's need? Was the patient set up for remote programming and then help work through the logistic of remote programming with the patient? We quickly realized that we needed to find a way to streamline that for our scheduling. So we created a decision tree, which really makes it easier for our scheduling to know.

Is remote programming an important option? And then they can help the patient work through those logistic, including getting them set up with a b success if needed this is an example of a possible decision tree that could be used for patients with advanced bionics cochlear implants. First, the scheduling needs to determine why a given patient needs to come in for an applicationointment. If the patient is wanting programming adjustment or having sound issues, the option of remote programming can be offered to that patient. If the patient is interested and open to remote programming, then the

scheduling can work through that list of questions to make sure the patient has the applicationropriate technology.

They have the application, their processor is paired to it, they're going to be in the state in which, for us in Wisconsin. And then if the patient doesn't have the application or something set up, our scheduling can help connect the patient with a b success to get them set up prior to remote programming.

That's a lot of really great information. What else do you consider when deciding to offer a remote programming session or none. I think there are a number of patients and situations that remote programming is a really great option for. One is to reduce the number of in person clinic visit. Like I mentioned with our study doing that two week follow up visit remotely.

The second is for patients who are reluctant to reduce their follow up visit. As we dropped our three month follow up visit, we found some patients just felt like that gap between the one month and the six month was too long. So we've been offering them a remote programming applicationointment. It's a nice touch point. We can make any minor programming adjustment they're wanting, provide some counseling without them having to come into the clinic.

And then for those longer term cochlear implant patients who are used to coming back annually for years and years, but really don't need to be seen every year, this is a good way to still touch base with them, assure them that everything looks good run impedances, have that connection point without making them come to the clinic and without taking up a big applicationointment slot for your clinic. We have also found that some insurance companies are starting to require clinic note to be within six months or one year before we can submit for authorization. So scheduling a remote programming applicationointment is a really easy way to get that documentation for a patient without them having to drive all the way into the clinic.

Patients who need minor programming adjustment, maybe you just saw them in the clinic and they think now it's a little too loud, a little too tinny, not quite loud enough. Remote programming is a great way to set up a time and just quickly meet with your patient, make those minor adjustment, and they don't have to drive into the clinic. For patients who have ongoing sound quality and hear concerns that aren't easily resolved, these are often patients who are wanting to schedule applicationointment after applicationointment after applicationointment. They're wanting to talk to you on the phone. They're sending you really in depth message and expecting really thorough replies.

That takes up a lot of your time. Remote programming can be a good way to connect with that patient, potentially make some programming adjustment, make sure the internal device is looking good, and then provide some of that counseling while being able to bill for your time. And then finally, patients who don't have a consistent program and or have fluctuate hear. So these would be patients who have Meniere's disease and autoimmune disease, patients who are having some sort of systemic change, like hormone changes such as puberty or menopausal, who are undergoing chemotherapeutic, and then just patients who have fluctuate impedances.

Based on all the different times that you will consider remote programming and all the different patient populations that may benefit, it sounds like potentially most patients could benefit from utilizing remote programming. And I know there are four audiologists at your clinic, three in addition to you. Well, that work with cochlear implants. Let me clarification. What has been your clinic's experience with remote programming?

We love remote programming. Overall, both the audiologists and patients have had a very positive experience with remote programming. If we look at the satisfaction questionnaires that were completed as part of our study, we can see that patients are overwhelmingly satisfied with remote programming and responded to all questions with strongly agree or agree. Audiologists were also very satisfied with

remote programming and unanimously agreed or strongly agreed that they would recommend it to other patients, that they would use it again, and that it was easy to use.

We really have been able to successfully program a wide variety of patients remotely. This includes patients very early in their cochlear implant journey, patients with a variety of programming needs, patients that cover a wide range of ages, including patients well into their eighties, and then patients with variable degrees or I degrees of comfort with technology. I think all the positive things aside, it's important to note remote programming is not perfect. About half of our study patients had some type of technical issue during their remote programming applicationointment. These issues ranged from kind of the software freezing up a little bit to getting kicked totally out of the remote programming session, poor Wi Fi connection, patients accidentally being connected to cellular data instead of their Wi Fi.

But even with those issues, we were able to resolve them during the session. It didn't impact the patient care, nor did it impact patient satisfaction or willingness to participate in future sessions. We have also found that other support resource are really important for patient success. As I've mentioned a few times already, a b success has been really helpful for our patients in a number of ways. First, they can help get your patient all set up with a b success and comfortable with that technology.

Additionally, especially for those patients who are doing a remote visit for their two week follow up, we have ab success connect with those patients to review equipment and their accessories because a lot of those patients are wanting to start using some of that technology as they're feeling more comfortable with their sound and their implant.

From a programming perspective, we really can provide patients with the same care remotely as we can during in person applicationointments. And because we can synchronously provide the same programming remotely, we're able to bill for these services without adding any sort of modifier, like the 52 modifier for reduced services. While we find remote programming to be a really valuable addition to

what we can provide for our patients, it does have its limitation. In order for us to offer remote programming more frequently for our cochlear implant recipients, we need a way to assess and monitor cochlear implant function and or benefit remotely, as testing really is still an important part of cochlear implant management.

Thank you Doctor Jensen. You just mentioned bill, and so I want to make sure to mention that for those of you on the call today, if you're interested in learning more about bill and reimbursement in the US, including bill for telehealth, it would benefit you to attend next week's webinars on Tuesday, October 1. And I definitely want to highlight that next week's is on Tuesday because all of the other webinarss have been on Thursday. You can register for next week's webinars with the link that is now in the chat. And next week we'll spend a full hour on bill and reimbursement.

And before we continue, I have a question that I'd like to ask you, Doctor Jensen. It came in from Nicole. In some states you cannot bill Medicaide for remote programming of hear aides. Have you encounter this? And if so, how are you navigate services for your bimodal patients?

So we have a really great Medicaide program in Wisconsin. So that is not something that we have run into specific. So I really can't speak to that. I'm not sure if one of the other presenters has any better information on that.

Okay. No one chimed in. So I think that it may not be something that those of our presenters today have had to address. We have another question from Nicole. What applicationointment duration do you schedule for remote sessions?

We are very lucky and we have 90 minute applicationointments typically in the clinic. So because we didn't know what patients would pick for the study, we kept them at 90 minute. For somebody who was doing a three month visit or I was just scheduling for a programming issue, I would schedule 60 minute.

It never ever takes that long. I would say on average it's probably right around 30 minute for a remote programming session.

Thank you Doctor Jensen, I applicationreciate all that you shared with us about your experience here in the states and Wisconsin. And we know remote programming can benefit a b recipients and hear care professionals all over the world. And that's where we've engaged Doctor Vasourisss, who I mentioned earlier. She's at the hear implant. She is working at hear Implant Australia, in Sydney, Australia.

She works with Doctor Philip Chang, who participated in the first webinars of this series, if you were able to catch that one. And because of our very different time zones, she is unable to be on this call. So I hope she is sleeping well and having lovely dreams and not thinking or stressing out about audiology. So we met ahead of time and I was able to speak with her and record some of our discussion. The clinic where she works has been using telehealth with their cochlear implant patients regularly since 2020.

And I asked Dina to share a little bit about her experience with utilizing telehealth with her cochlear implant recipients. And this is what she shared with me. As mentioned, at some stage today, remote practice is something that is not always offered by all audiologists. It can be synchronous or asynchronous, which means that it can occur online during real time, such as the A B target software allows or offline where a new map can be downloaded and an evaluation can be completed at a time that's convenient for the patient. That's the case with some of the other manufacturers.

But as we know with AB, the mapplicationing is performed remotely, in real time with their audiologist and the surgeon. And you can see doctor Chang in the photo, still likes to be present for some of those applicationointments where he can. So with advanced bionics remote care, when we look at it more specific, there are no limitation for our mapplicationing with other platforms are often limited with how much of the map can be adjusted real time, and we often need to rely on the asynchronous data to

make changes to the map. We also find that it can be difficult for patients to download the map that we've completed and install it at a later date. With AB, though, we're able to make changes real time and see what impact it has on our patients and their communication straight away.

So that means that there's uninterrupted care for the patients, despite their regional locations or their busy lifestyles.

When I spoke with Dina, I also asked her how utilizing telehealth has affected clinical efficiency at her clinic in Sydney. Let's take a look at her response.

When we looked at what remote care could offer our patients specific for hear implants Australia, we saw that during 2024 this year, we've scheduled more than 30 remote care applicationointments. This has meant that we have saved almost 40,000 km in clinician travel. I probably should have converted that to miles. My apologies. But we've also saved 190 hours in travel time for our patients, which is huge considering the geographic span of how far some of these patients live from our clinics.

We've also managed to reduce the wait time for applicationointments for our regional patients by an average of 32 days. More often than not, with the remote applicationointment offering, we're able to see them within the week. And this is using a combination of synchronous and asynchronous delivery models. But we do see that the major impact is coming from our synchronous delivery service offering. We've heard positive experiences with remote programming from here in the states with Doctor Jensen, and in Australia with Dina.

And I'd like to ask a polling question now, based on what we've discussed so far. What are the benefit or what benefits of remote programming are available to your patients? May it help them save time. Save money. It's more convenient.

It reduces stress of travel and parking. It helps them have programs tweaked or optimized in specific environments, and you can select all that applicationly. I know that every patient has specific needs, so some of yours may vary. I'll give you just a few more seconds and we'll go ahead and end the poll.

All right, so based on the results, the top answer is to reduce stress of travel and parking. I think many cochlear implant centers are in city centers, which can be stressful for everyone, even those of you who work there every single day. Improve convenience, and then all of the other options as well. To save time, to save money, and to give some unique programming adjustment in specific environments that are valuable for your patients.

I'd like to take a moment to hear from our other two guests about their experiences with remote programming. Doctor Marcilia, what are the biggest benefits of remote programming for you as a hear care professional?

You know, I think the biggest benefit in the clinic is that the remote programming sessions are much shorter than our standard clinic visit. So just with, you know, traveling throughout the clinic, going out to the waiting room and back to the remote to our clinic office, and then reduction of just some chit chat because our patient expectations are a little different. They are scheduling remote programming to have a quick visit, and you've been using it since it became available. What are some of the biggest benefits that your patients experience at Johns Hopkins?

Quick troubleshooting is what we have been using it mostly for. If we need to add an extra program or make a quick check for a change in sound quality. Our patients are really loving this option. Yeah. Doctor Spangler, since you are an advanced bionics recipient, could you share how you think remote programming can benefit advanced bionics patients?

Yeah, sure. For me, I am actually about 2 hours from a cochlear implant center. So all of the polling questions that you just saw and people are rating, I would agree with. For me, the time for travel, it always means a full day off work. So if there's something that is quick and easy that needs to be done, it would be nice to have a more 30 or 45 minute applicationointment.

Of course, like the savings for gas and mileage. And at the beginning when I had very early applicationointments, it sometimes meant an overnight stay at a hotel. I think a good example for me personally was this summer I had decided to take up stand up paddle boarding as a hobby, and I invested in the waterproof pace for my cochlear implant. And in order to utilize the waterproof case, I needed to have off ear program in my processor and I didn't have that so this would be a great example of how a remote programming session would have probably saved a lot of time.

Thank you both for sharing. Doctor Marcilia and Doctor Spangler. Doctor Marsiglia, you participated in a study that looked at the usability of an application based remote self assessment. Earlier, Doctor Jensen mentioned that self assessment is an important part of cochlear implant patient management. Will you share information about the patient population at Johns Hopkins and what the study evaluated?

Of course, yeah.

All right. So our study was conducted at our cochlear implant center, and we've got a fairly large center with five audiologists and a database of a little over 4000 patients. And each year we see about 4000 visit. So that was interesting. Our patient population has about 15% pediatric patients and 2020 some percent elderly patients.

And then over the year we have about 12% of our visit being our patients coming in from out of state. So for all of the reasons we've heard about already, you know, saving time for travel and childcare

expenses and burdening another family member to assist with visit into the clinic, we wanted to look at how we could improve the accessibility to assessments with cochlear implants.

All right, so we asked a couple of questions, and our research questions include, can an application based remote self assessment be used to determine the need for annual clinic visit ahead of time? And second, what would be the patient and clinician attitudes towards using remote self assessments in a clinical practice?

So, in our research study, we had 15 adult cochlear implant users and three cochlear implant audiologists as participants. The participants completed a self assessment prior to coming into their already scheduled routine visit. And this self assessment was actually done in clinics. So they came in early on a separate day and conducted the self assessment on a clinic bionics. Following the participant's self assessment, their clinician reviewed the results and indicated whether a clinic visit was necessary or whether or not they felt a clinic visit would be necessary for them.

All of the participants already had their clinic visit scheduled, so the routine annual visit then occurred. And following their routine annual visit, their clinician indicated whether the clinic visit indeed was necessary or not. Once they were able to compare their self assessment test scores with their in clinic test scores, and then finally both participants and clinicians completed attitudes questionnaires. So we wanted to find out if both group was comfortable with a remote assessment and how they felt, how effective they felt the remote assessment was. Thank you for sharing that information.

Will you share more about the application that the study participants used? Sure. So, as I mentioned, the application that we used was downloaded onto a clinic iPad. What you're seeing here in the slide is an example of what the application might look like on a cell phone that can be used with the remote programming, similar to what's used with remote programming. The patients first completed a patient needs assessment.

So it's a questionnaire with about 35 questions asking how things were going with their equipment, how they felt their function was, where their difficulties were occurring. And then in our study, we did not have an impedance measure on the research application. We did have an audibility check, which was a quick tone test, and it's a hear screener at 30 decibels. And then we had three speech perception tests that we did. We conducted a single words test, so CNC word test.

We also conducted digits in noise and a phoneme perception test in quiet.

Thank you. And what kind of data did you collect from the application?

As you can see here, all of the data from the application was then stored into a research dashboard. So an online portal where audiologists could then view the patient data. The dashboard provided an easy way for the audiologists to see the stimulate the responses to each stimulus item. And so on this slide, you can see a couple examples of questions in the top left hand corner. From the needs assessment, you can see that the answers are color coded.

So any answer that would need attention is color coded, more of an orange or red to alert the audiologist what the patient's answer was. You can also see to the right of that digits in noise responses. And so that test is scored as a signal to noise ratio or signal to noise response. Underneath the needs assessment, you can see responses to the phoneme perception test. And so that test is looking at the errors, the phoneme errors that a patient might have when listening for specific consonants.

And then finally, on the slide, you can see the quick tone test. So it is a pass or fail to a 30 decibels hear screener. What you're not seeing on this screen is the CNC words test results, which is exactly what you would expect. You have the stimulus word and then the stimulus response marked as correct and

incorrect. And yes, spelling was taken into consideration with a software analysis.

So I was very impressed with the ability for the software to determine a correct or incorrect answer. You were able to collect a lot of data through these tests. And so what were the results of the study?

Well, we were really, really happlicationy with these results. So we were happlicationy to see that our self assessments did provide accurate information to determine whether or not a person needed to come into the clinic. For a visit.

Here, you can see that the green bars demonstrate good agreement between remote and in clinic data. So, out of 15 cases, the data determined applicationropriate deferrals for seven participants and necessary applicationointments for three participants. So for ten out of the 15 participants, the remote assessment did an accurate job of letting us know whether a patient needed to come into clinic for a visit or not. We did see two inapplicationropriate referrals. These two patients showed changes in their audibility that were not picked up in the hear screener.

And then we saw three unnecessary applicationointments. And that was because two patients had no issues, but reported that they wanted to be seen by the audiologist in the needs assessment questionnaire, because sometimes we do have great interactions and relationships with our patients, and they just want to see us. And then there was one patient who failed the quick tone test on the hear screener. However, their performance in clinic was actually found to be stable. This particular patient just didn't really understand the instructions on the hear screener.

So overall, we were very happlicationy with the ability of the self assessment application.

As I had mentioned, the last part of the study protocol was for our audiologists and, and patients to complete questionnaires about their attitudes of the self assessment application. And we did see

positive attitudes towards use of the application in clinical practice, noted by both the audiologists and the participants. So the audiologists in general thought, yes, the application and the remote application as provides the same quality of assessment as the in person clinic sound booth testing. And the patients felt 75% positive about the same quality of assessment. Audiologists felt that the remote assessment application was able to assess communication concerns.

Again, patients felt that about 75% positive attitudes on the ability to communicate concerns with their audiologist. And then finally, the audiologists and patients felt that the remote application could indeed reduce the need to come into clinic for visit.

Come on. There we go.

So, when asked about the frequency that patients would become willing to use the remote application for self assessment, we saw a range of answers, and these are actually answers from both patients and audiologists. What I'd like to point out here is that not a single person saide that they were against using the application. So some people saide they would be willing to use it every three months. Most people saide once a year to continue their annual assessment data points would be applicationropriate.

All right. And then, so, in conclusion, we did indeed have an overall positive experience.

There was general agreement between remote and clinical assessment.

For the most part. We just had two patients who didn't really need to come in, but they wanted to come in to visit with their audiologist.

There were areas of improvement that were noted by the audiologists in their questionnaires, such as improvement of the audibility quick tone test screener, the ability to visually inspect the patient's

equipment and the implant site, the ability to track their performance over time. So, obviously, if you started using remote programming, you would be able to track performance over time, and so that problem would be solved. And then some of the test data is not what we use in clinics. So the audiologist wanted more normative data on the tests that were being used, particularly the digits and noise. Finally, we did find that the self assessment application could indeed reduce the number of annual clinic applicationointments necessary.

We found that seven out of 15 of our subjects had applicationropriate deferrals. And so with the assessment information they provided to our audiologists, the audiologist could then say, I don't think it's necessary you come into clinic this year for assessment. Thank you very much. We'll see you in another year. Thank you so much for sharing this research.

Doctor Marcelia. It's really exciting that both the recipients and the professionals found this remote assessment to be a positive experience and something that they may benefit from in the future. Thanks.

AB provides a lot of innovative technology and options to customize care throughout the patient journey, from candidacy to surgery to activation, and then throughout the recipient's CI experience. It's important for us to meet recipients where they are and address their needs related to their individual hear loss and their individual lifestyles. AB remote programming is unique, as you've heard here today. It can be conducted in real time as a complete programming session and is billable, which makes the process more convenient and efficient for AB recipients and you as hear care professionals. Digital technology provided by AB provides opportunities to empower our patients and to customize their care.

AB currently offers a wide range of digital solutions and will continue to expand our digital portfolio. I'd like to ask a polling question, and the question is, which digital solutions from AB do your CI candidates and patients use? And again, you can select all that applicationly. We all have unique needs, as do the

AB cochlear implant recipients. So I'll be really interested to see how you all are choosing your answers here and to find out which digital solutions your recipients are using.

All right, we can go ahead and close the poll.

All right, it looks like the AB remote support application is the most popular hearsuccess.com, which I am so happlicationy to hear. We talked about this a little last week. It's the website where recipients can access our rehabilitation tools. We also have the AB remote programming application and then hearJourney.com and myab online. I'm happlicationy to tell you that we're going to talk a little bit more about hearjourney.com and myab online.

And maybe as you learn more about it, you can encourage your patients to utilize those resource as well. Doctor Spangler, what do you think are some of the best features of the AB remote application? Yes, thanks for asking. I think at first I didn't realize all of that was when you first get a cochlear implant. Just overwhelmed with the cochlear implant initially and everything that comes in the big box.

So I guess my advice to cochlear implant audiologists out there at each follow up applicationointment, make sure that you're having your patient look at that application, because there is so much inside of that. One of the things that I recently discovered was the application, and you can see the picture on your screen right now. But I had finally gotten my TV connector, and I enjoy cooking, and it's sometimes nice to be able to watch TV at the same time or listen to something in the background, and I would have the TV on, but I really couldn't understand anything that was being saide. And when I started exploring the remote application a little more closely, I realized that at the bottom of the application for the TV connector program, I could actually control the balance of what I was hear on the TV. And so now one of the joys that I have is to be able to cook and be able to actually understand a program that is happlicationening on the TV at the same time.

So I think that's just one of the greatest things about the application. It's so much hidden inside of it. And to remind patients what is inside is a great idea for each of your applicationointments.

Thank you, Doctor Spangler. Another digital resource from AB is the AB support application for remote programming, which we've talked about. And it allows patients to experience programming from the comfort of their own homes or any other location that's convenient for them. And as an educational audiologist, what do you think are some of the benefits of remote programming? That's a great question.

As an educational audiologist, I see kids along the whole hear journey, and some of them are getting cochlear implants for the first time, and some of them have had them for some, for a long time. And as an educational audiologist, I have the opportunity to work with an interprofessional team of speech language pathologists and teachers of the das and hard of hear who really get to know these kids and can find out exactly where they may be having some difficulty with different sounds or discrimination or just hear in different classrooms within the school environment. So as an educational audiologist, to be able to connect closely with the cochlear implant mapplicationing center and be able to connect a student who may be mixing sounds or not hear as clearly or maybe needs a tweak in a speech and noise program. This would allow me as the educational audiologist to communicate closely with a cochlear implant math audiologist. Do be able to start that student up for a quick tweak and then that student isn't missing a full day of school and academics in the process.

So I think the remote programming has a lot of possibilities for educational and cochlear implant mapplicationing audiologists to coordinate together.

Thank you. We know remote programming has a lot of potential benefits and we heard some of those clinical benefits from the programming audiologist earlier in the webinars. But thank you for sharing kind of the flip side of that. As the educational audiologist providing support to your students, it's great to

hear how it could be beneficial for them as well. AB has many other online resource, including hear success where recipients can access rehabilitation tools.

And as I mentioned before, we addressed that last week, we also have Myab online, hearjourney.com, and many more. My Ab online is a web portal that is full of resource for aB recipients. Whether the recipients need detailed help on how to use their hear devices, information on insurance status, a list of events in their area to get to know other people with cochlear implants or to shop for an accessory, they can find what they need in one place with Myab online. Doctor Spangler, what do you find beneficial about Myab online?

Yes, thanks for asking. I think for me, as I mentioned earlier, I am about 2 hours away from my cochlear implant center. So to be able to download the application and have access both from a computer and my application to the different portals that are available, one of the things that I have used frequently too is under my devices. So I'm able to go in, look at when my warranties expire. I have been able to troubleshoot some difficulties with my cochlear implant and by troubleshooting I was able to then order the necessary replacement, whether it was a battery or cord or whatever needs to happlicationen next.

So those were some great ways that I have used the ab online from a consumer perspective. The other thing that I have used under the resource lab is for the hear success for rehab and getting a cochlear implant, I always say, was kind of like learning a new language for me and being 2 hours away from the cochlear implant center, I wasn't able to have direct auditory therapy right after the cochlear implant. I was able to find somebody closer to me, and I went to this person one day a week in order to have learned to listen with my cochlear implant. But the hear success application, there's the words and another application that really lets you learn how to listen and stream directly to the cochlea implant. That was one way that I was able to practice listening with my cochlear implant and then be able to report back to my implant audiologist how I was doing and what kind of tweaks I thought I might need

along the way.

And as Laurie had mentioned earlier, a lot of these were supporting patients at every part of the journey. And for me, even five years out, I still find myself going back into the auditory training application, such as the words and sentences and different situations for tune ups along the way, so that I can ensure that I'm still making progress and learning how to optimize the use of my cochlear implant.

And then I also wanted to ask our other two presenters too, about their experience with the online portals and how their patients may have benefited. So doctor Marsiglia, do you have any input?

I agree with you completely about patients taking an active role in their cochlear implant management with their AB online account. So I always encourage my patients to sign up for their account. That way they can see what equipment they have when the warranties end and they're able to submit requests for in warranty replacements without going through me, because I can be the hang up in the process. And if they manage their account with directly through advanced bionics, things go much more quickly for them.

Doctor Jensen, do you have anything more to add? I don't have anything to add, but I agree wholeheartedly that we really need our patient to be taking ownership of their hear health care and taking some of that burden off of the clinic.

Thank you all for sharing information about the value of the consumer portal hear success and the pro portal. We're going to place the links to both the consumer portal and the pro portal in the chat. And you obviously can access the pro portal. And I encourage you, as do our presenters, they also encourage you to encourage your recipients to utilize the consumer portal to help manage some of their healthcare. Doctor Spangler, what other AB resource have you found valuable as an AB recipient?

Yes. So I would say probably even as a professional who has worked with families and with kids who have gotten cochlear implants. On the professional side, I. When I became a patient, I realized that the most important need that I had was being able to connect with other cochlear implant recipients who were farther ahead of me on the journey. And to ask those questions, because unless you're in the shoes of someone that has gone through it or is thinking about going through it, it's really hard to support someone.

And so the hear journey is a great community to connect with others who are on that journey with you. And so whether you're thinking about the journey, you are a family member or a supporter of the journey, there is a place for you in hear journey. And some people may not be comfortable connecting with others virtually, how we're connecting today. And that's okay. There's a lot of other resource in there that you can learn and gain insight.

So if you have a question about something before you get your cochlear implant, or right after you get your implant, or even further along in the journey, like, I've had questions about how do you engage in sports when you have a cochlear implant? And then different advice from other recipients on how to do that. So I think connecting and being able to share your story is such an important part of that journey.

Thank you, Doctor Spangler. I have a final question today for each of the presenters. Now that we're getting close to the top of the hour, what I would like to do is pose the question. Then I'm going to flip to the next slide so that those of you on the call can start the short survey that we have for today's session. It's two required questions.

It should take you less than 1 minute. And so I will pose the question and then click to the slide where you can access the survey either via a web link or the QR code. And the question I'd like to ask all of our presenters is, will you share one action that CI clinics can take to be more efficient and to better

serve their patients? And I'll start with Doctor Jensen. Sure.

So I would say, when you have the patient in the clinic for an applicationointment, talk to them about remote programming, get them set up with remote programming, get them comfortable with the idea, and then just try it. After having done remote programming, I would offer it to so many more patients than I would have before I had done it. It really is so easy to use it's great for lot of different patients. Thank you, Doctor Jensen. Doctor Marsiglia.

Sure. I would say encourage your patients to sign up for their ab online accounts and really become their best proponent for everything they need as far as equipment. So grabbing the bull by the horns and communicating with advanced bionics for their needs. Great. And Doctor Spangler, I think I would encourage from a patient perspective as an audiologist going at every applicationointment, have your patient open up that application and go to the little wheel at the top where there will go to all of the other settings that are in there and just encourage your patients to set a goal.

How are they going to utilize their application to utilize their cochlear implant more effectively before you see them at their next applicationointment? Great. Thank you. And thank you all for being here today. I applicationreciate all of you on the call as well as our guest presenters.

And just with one final announcement, I'd like to say please join us for our next and final webinars of this series. It's next Tuesday, October 1, the same time as all the other webinarss. The topic is coding and reimbursement in the US with guest presenters Andrea Overton and Lindsey Van Louie. The registration link will be placed in the chat so you can register directly for that webinars. And again, thank you everyone who took the time out of the clinic to join us today.

Both those of you on the call and our guest presenters today. Thanks everyone and have a great rest of your day.