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Teleaudiology in the VA: Emerging Technologies, presented in partnership with AVAA

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So we will be discussing today tele audiology in the VA Emerging technologies, presented in partnership with AVAA.

So, here are the disclosures for the three presenters of today. Feel free to please read that at your leisure.

And these are the learning outcomes for this presentation today after all three of us have gone through all of our so after this course, participants will be able to describe what audiology and hearing aid services can be provided virtually using VA video connect and remote programming, describe potential settings and uses when implementing AMTAS in the clinic, and identify prospective patients to be seen at an Atlas site and list services that can be provided at an Atlas podcast.

Our presentation outline today will start with AMTAS. I will be talking about AMTAS first for the first few minutes. Then we will give the control over to Doctor Crawford who will go over VA video connect and remote programming, and well, wrap up with Doctor Lindwall who will give us all the information about atlas today.

All righty. So again, I'm doctor mccall, Danielle mccall. And I'm going to be talking about asynchronous telehealth, automated audiometry, specifically AMTASks within the VA.

Let's start in general between figuring out what is asynchronous audiometry and how do we differentiate that from synchronous telehealth? Synchronous telehealth means that there is real time interaction between the patient and the provider that is aided by the use of a video conferencing system. So, simply put, these technologies and interactions are occurring simultaneously. When it comes to asynchronous telehealth, it means using technology to acquire and store some sort of clinical information from the

patient, whether that be data, images, videos, sound, which is then forwarded or retrieved by a healthcare professional at another location for clinical evaluation, often at a later date or end time. This is sometimes referred to store and forward modality or STF.

If you hear me use that abbreviation. Now let's discuss what automated audiometry actually is, which is basically the use of a responsive program or an algorithm to complete a hearing evaluation without the use of a provider or a technician controlling the actual audiometer during the testing. I also want to mention about automated audiometry that can really fall into either the synchronous or asynchronous category, depending on how it's being used within the facility. But for today's presentation, for our purposes, we will be discussing the use of automated audiometry through asynchronous telehealth, or the store and forward modality, which is currently a nationally approved VA telehealth program.

So who are the team members that are utilized in this automated audiometry asynchronous virtual team in the encounter series that we're doing, first, we have what's called the imager. The imager is responsible for a variety of tasks, which include capturing the required images and the data for the audiology study and interacting face to face with the patient, answering their questions, making sure the environment is safe, all of that good stuff. Any staff member appropriately trained in telehealth and audiology procedures associated with tele audiology and of course, acting within his or her scope of the practice, can assume the role of the imager. Most often, the imager is a telehealth clinical technician or a TCT. However, an audiology health technician, an RN, LPN, or other telehealth or audiology staff member may be able to function in this role as well.

So second, on the team we have the audiology teleprovider or the reader. The teleprovider is always a licensed audiologist. This individual has a doctorate or

master's degree in audiology. They specialize in evaluating and treating hearing and balance disorders, and they are the person who is designated to review the remote audiology study and then to follow up with the patient to go over the results with them to discuss a treatment plan and give any recommendations that they have.

Okay, so now that we know about the general definition of asynchronous store and forward audiology a bit more, let's jump specifically into what the current VA tele audiology asynchronous solution is for hearing evaluations. So this is where that keyword AMTAS is finally coming into play. And what AMTAS stands for is the automated method for testing auditory sensitivity. The AMTAS system is developed by the Grayson Sadler company, commonly known as GSI. In a very basic description, what this system, this software allows a technician to do is to aid a patient in completing a hearing evaluation, which includes air conduction thresholds, bone conduction thresholds, speech recognition thresholds, and word recognition and understanding results.

When this AMTAS system is paired with a specialized camera called a total exam camera, or te three, and the capture software platform from Globalmed, we're able to now save and store images of the patient's external ears and ear canal along with the AMTAS test results, those hearing test results directly into the patient's electronic medical health record. So this is an all in one solution and integration into the VA's cprs or the more updated electronic medical record that they're rolling out soon and it is providing a great foundation for our asynchronous store and forward telehealth rollout within the VA all in one system that should work great together.

The next one. Okay, on this slide I have a summary of the essential software and hardware components that are needed for this all in one store and forward solution. So the VA supported software needed includes capture three within Vista, a GSI AMTAS Pro software, the noaa module, and Vista, a imaging display. And then the VA

supported hardware that is utilized would be the GSI audio Star Pro, the all in one desktop PC globalmeds total exam three camera examination camera with interchangeable Otoscopes and OTO focus heads, as well as an elongated measurement tool. I'll dive a bit deeper into each of these systems over the next few slides.

All right, so we're going to look at the AMTASk software. Now, this all in one software. You will see on this slide here a high definition image of the external ear as well as the tympanic membrane. These images are obtained by the imager or TCT using that capture software and are easily stored within that system database. These images are later reviewed by the reader or audiologist to assess the external auditory canal and tympanic membrane, as well as to obtain measurements that can be used later to calculate for a RIC hearing aid the receiver length that we may need for any of the manufacturers that are on the VA contract.

Next, on the slide to the right, you're going to see a screenshot of the GSI AMTAS Pro configuration app or configuration screen. This is where the imager and the reader can go in in order to set the hearing test configurations in whatever way aligns with their clinical needs. For example, if we're wanting to include interactive frequencies or not in the exam, if we want high frequency testing if needed, or at what intensity, we would like the speech to be presented to the patient. This is where we can go in and have a little bit of control over how that system is going to work and present the test. And then lastly, right underneath that, we're going to see the GSI AMTAS testing screens.

So the AMTAS system software is fully automated and self administered, and all instructions are given through the headset before testing to the patient. AMTAS is based on a psychophysical procedure that uses the patient's responses to determine signal levels needed to find their auditory thresholds. The test is self paced, so the patients proceed at a rate that is comfortable for them. Feedback is provided to the

patient that helps them distinguish between test tones and other auditory sensations. And during the test, the patient will be presented with alternating screens, which you can see below there with various prompts on them.

The patient should keep responding throughout the screens. Keep going. The AMTASk software performs these tests by actually controlling a GSI audiometer, which is connected to the PC that is running this specific software.

Okay, so a few more things about the AMTAS tele audiology software that we use here. The first picture you can see is the GSI suite program, which is housed within the noaa four software system. noaa is designed specifically for the hearing care industry, providing hearing care professionals with a unified system for performing client related tasks. The GSI suite program is a data management software program that is designed to view and store audiologic data and is accessible as a module within noaa four. Once the patient has completed the hearing evaluation through the AMTASk software, the results will populate into that GSI suite that you see now.

To transfer the results from the GSI suite to the patient's electronic medical health record in the VA system, we utilize something called Quasar. It stands for quality audiology and speech analysis and reporting, which is a vista, a software package that provides transmission of the audiometric data from certain audiometric testing systems right into the VA electronic medical health record. Then the audiology, or, excuse me, audiogram edit component of the quasar audiogram module is a Windows based software app that allows clinicians to go in and enter or edit and view a patient's audiometric exam record and audiogram graph right there. And then lastly, in the bottom left, you'll see an image of the vista, a imaging screen. You'll see all the ears on there, a little bit small, but they're all in one place along with the hearing test results.

So this is another VA system within the electronic medical health record that allows providers to see all the images in one place. The imager, or TCT, will ensure all that those images from the ear from the capture software, as well as a copy of the AMTAS generated hearing report, are uploaded here so that the reader or audiologist will have access to everything that was collected during that appointment in one place, which is very nice. So, as you can see, these data transfer connections are vital as they allow for a full set of results, a full set of images to be properly stored to the patient's medical record, with full security, of course, and then retrievability for the audiology provider to review before developing a care plan with the patient.

Okay, so what equipment is used during an asynchronous automated audiometry encounter. So we have the GSI audio star pro audiometer. So you can see we still have a physical audiometer right there in the clinic that the AMTAS software is controlling throughout the test. There is the GSI 39 admittance bridge. That one is optional.

But if you do want the TCT or the imager to perform tympanometry or any other tests in that admittance bridge, they do have the ability to do that and upload the images into Vista a, then the touchscreen all in one PC system. That is the part where the patient is actually sitting in front of that computer. It's a touchscreen computer, and they're getting the different listening testing screens popping up from the AMTAS software, and the tone will be played, and then it gives them a prompt. Do you hear the tone, yes or no? And they can just choose yes or no right on that screen.

Next, you'll see on the bottom row there, we have the noise monitoring kit for the system and then our transducers that are used. So the circumoral high frequency headphones and the Amban headbands and bone oscillator next to the bone oscillator transducer. I put how that? We put that on the patient. So you'll see it's actually on the forehead that that's placed for the AMTAS system.

Okay. And then this slide, we have the handheld examination total exam three video camera, along with a detachable autofocus camera head, which is used for capturing photos of the external ear, and the otoscope head, which is used for capturing images of the ear canal and tympanic membrane. The elongated measurement tool and the total exam three tongue depressor attachment are also labeled there for you to see. Now, when we put all of these components together, you'll see on the right, the elongated tool with the three setup. So that is what it actually looks like when we put everything together.

And what we're using this for is to get a good, clear picture of the whole entire external ear for the imager to be able to see and for the reader to be able to see the audiologist at a later time. So the way that this works, how we do this, the tongue depressor attachment snaps onto the total exam camera autofocus head. Then that serves as the holder for that elongated measurement tool as seen here. The imager will then place the elongated measurement tool beneath the patient's ear. The recommended placement of the elongated tool is just posterior to the lobe of the external ear near the mastoid.

This allows for complete visibility of the external ear, which is captured using the freeze frame setting on that camera. This also allows for later accurate measurements to be taken of that freeze frame image within the capture software. This measurement line is taken by drawing with the mouse cursor from the patient's pre auricle area down to the top middle of the tragus, right over the ear canal appendage right there. This image is also annotated with either right or left ear. These measurements will be used later during hearing aid selection in order to choose the correct receiver length for any of the hearing aid manufacturers on the VA contract.

Then right here, I just have a picture from the Montana VA, which is where I currently work. And this is one of our AMTAS tele audiology setups. Though you can see it all

put together right there, we have the computer connected right to the actual manual audiometer. So that's how the software from AMTAS is running and controlling that audiometer. You see the all in one PC where the patient actually is touching yes or no for the test.

If they hear the tone or not, or when they're presented with speech, they choose the word that they think that they heard. And then we have the transducers there on the table, as well as our noise monitor and the GSI 39 tympanometer.

Okay, so you may have noticed that this whole system in the picture that I just showed you and from everything we've been talking about, is set up in rooms that are not a sound booth. They're not by a sound booth. So booths are usually one of the most common limiting factors when it comes to how many patients we can see for hearing tests. There is often not enough space in our smaller clinics to even place a sound booth or an additional sound booth. So, as a potential solution to these kind of space issues, the AMTASk system can be configured with a noise monitoring kit that monitors the ambient noise in the room during the entire testing procedure to just ensure that we're not exceeding any permissible sound levels.

Additionally, the headphones that we use for the testing are the DD 450 circumoral high frequency headphones, which also provide a good amount of noise attenuation just on their own being used. So, utilizing both the noise monitoring kit and the circumoral headphones allow us to effectively add a testing space to a place where you otherwise wouldn't be able to do so because of spacing issues, not being able to put a booth in there, all while monitoring for interfering noise which will be reported on the test results so that the reader, the audiologist can review that and ensure that the test results are valid and reliable. And of course, if they're not, if there's too much room, we can do some retests or come up with a different plan.

So now that we have the basics of what AMTAS is and how we use it, just wanted to put up here a clinical workflow of how this would work from very beginning of the patient being scheduled for an appointment to the very end when after they have talked to the provider and are going to start on their treatment plan. So just shortly going through this flowchart here, the very first thing that comes in is that consult. If the patient is right for the store and forward AMTAS testing situation, then we bring that consult into our tele audiology imaging clinic or SFT clinic and then we get that patient scheduled. Of course, then the patient comes in for whenever that scheduled appointment is and provides consent for the images to our TCT to our imager. The TCT then starts to go ahead and capture the images, completes the automated hearing test, gets all of that done, usually pretty quickly.

We can get them done in about 30 minutes to 40 minutes most. Then the TCT or imager will upload all those images and all that data into the electronic medical record to vista a imaging and then the TCT imager will complete their progress note indicating that all the images are uploaded and then that patient side encounter is now complete. Patient goes home and what will happen next? Once that's all complete, is the reader or the audiologist will receive the tele audiology imaging consult alert in cprs that hey, we're done with this part, now it's your turn. So the reader will go in there during their free time, their admin time, or if they have any scheduled time, just for AMTAS shorn forward, they will browse the images taken at the acquisition site, the patient side site, using that vista a imaging display application in quasar.

And then what the reader will do next. They'll go over all of that, and then they'll write what's called a read note. So they'll take all that information, they'll write it all down in an actual note in the patient's electronic medical record and then let us know at the end when they are going to schedule the phone call with the patient. Once that is done and completed, signed off, and the patient has a phone appointment scheduled with the reader, the audiologist then, of course, the reader will go ahead and contact that

patient to discuss the results. And then once results are discussed, treatment plan recommendations are all finished and complete.

Then that provider will complete a second note, that telephone encounter note, and then that is the end of that whole process there. So three notes in total come out of this workflow right here. I wanted to also give you all some candidacy criteria for AMTAS. So the following is really important in determining a good candidate for for AMTAS, given the nature that this is a self guided hearing test. The imager, of course, is there if there's any questions or anyone needs help, but they are not delivering the test in any way.

So the criteria for vision, physical limitations, and cognition are related to the veteran's ability to interact with the touchscreen during testing. Throughout the AMTAS exam, quality indicators are collected regarding times per trial and consistency. So visual acuity acuity is necessary for responding to stimuli on the screen. And during pure tone testing, the patient is selecting yes or no in their responses. So we want to make sure that they're able to actually see that and be able to physically touch the yes or no, make sure that is okay for them.

And then also during the speech recognition threshold and word recognition testing, they have to make a choice between four words presented, so they'll need to be able to see those and touch those. Regarding degree of hearing loss, the presentation level for word rec testing does not exceed, it cannot exceed 80 decibels, and word rec testing will not occur if the SRT or the PTA are greater than 68 decibels. So that's just a limitation of the software, unfortunately. And then in many locations, AMTAS is being used only for established patients. In other locations, this is the only method for hearing test sensitivity.

And so for this reason, the referral method into AMTAS clinic may vary significantly based on the location, what the needs are, and how they want it to be implemented.

Here I have an example of an AMTAS hearing report for a provider, for an audiologist, and then a listing of the evaluations, different quality indicators. So clinicians have two separate reporting options. A data centric view where results may be interpreted by the examiner, by the audiologist, which is pictured here, and then a text centric report that the patient actually gets at the end of the appointment, and they can bring home and reference or read along whenever the provider is talking to them during the phone call when the results are reviewed. So a much more user friendly version, the audiologist's report here captures these quality indicators, classifications, and audio metric data for a detailed look at the hearing test results. While the patient report features that more comprehensive, easy to understand interpretation of the audiometric findings.

The quality indicators provide information about the patient's behavior during testing. So using the quality indicators, given the clinician insight on how to proceed with counseling and additional testing or perhaps, retesting is really useful there. So we can basically see is this a reliable test? Or maybe not. Maybe we need to do something else.

I won't list or go over each individual quality indicator due to time purposes, but if anybody has any questions about them, you can definitely feel free to ask.

Okay, so ways that AMTAS can be utilized in the clinic why would we even want to use this? Right? So if you think about what issues does your clinic face? Some common answers are a lack of space, a lack of staff, leading to long access wait times for patients. These limitations can make the ability to provide the more frequent exams, maybe for monitoring asymmetries or ototoxicity protocols, even occupational health programs a bit of a burden on the clinic.

If any of those sound familiar, the asynchronous automated audiometry or AMTAS system may help with your clinic utilization. As we know, space is often difficult to find in healthcare facilities. Fortunately, the AMTAS system does not require a sound booth, allowing for a standard room to be used for the hearing evaluations, as long as it's relatively quiet treatment room away from excessive noise. In regards to staffing, one helpful use is in regards to planned or unplanned leave. You may be able to work with your trained imagers to facilitate asynchronous exams in lieu of the planned manual audiometry as an alternative to canceling appointments.

Additionally, given the asynchronous method of this telehealth modality, the patient is taking the exam at their closest VA while the audiologist is either with other patients somewhere or maybe in a totally different location. Therefore, the provider does not need to be readily available during the appointment time. This means not as many audiologists are needed in order to see the same amount of patients. So following the patient's initial evaluation visit, the audiologist would have dedicated time for the completion of the results, read and follow up with the patient. Since the completion of the read and any of the follow ups takes significantly less time than the actual exam, then the audiologist, using the system can take care of multiple patients within that same hour time slot that normally would have to be dedicated to just testing one individual patient.

This can really increase workload credit as well as appointment efficiency in regards to access to care when patients are correctly identified as candidates for asynchronous automated audiometry and triage to your store and forward clinic, then you can free up time in your synchronous audiology clinics for new or complex patients, reducing wait times and then referrals into the community or CITC. And then of course we can use these for routine hearing exams or screenings of established patients. So best practice guidelines suggest adults should have repeat audiograms every one to three years to

monitor for changes and update treatment plans. This is often not feasible in our busy clinics or it can negatively impact clinic access by using so if we use this automated audiometry for monitoring exams then this allows for these type appointments to occur without bogging down the audiology face to face or the synchronous telehealth clinics while still ensuring the best practices and care for patients.

All right, I did want to make sure that I brought up some of the challenges and limitations of AMTASk and some of these can include testing instructions and procedures. They can't be modified during the test. Kind of is what it is. Limitations on the speech testing levels due to the system programming which we touched on a bit before. There is need for procurement of specialized equipment and software which is of course going to cost money extra work for the imager and reader.

So if you're seeing more patients during that hour time block then than you would normally for just your one patient, it may be an increase in some workload. Skepticism from providers regarding test accuracy. Definitely some concerns we've seen with can I really trust this test if it's just a machine doing it? Pure tone, air and bone thresholds are masked at all time for all test points, so that can be peculiar to some. And then of course concern for future job outlook.

If a machine can do this, then why do we need so many audiologists? All of those can definitely be challenges. Limitations of why some people may not want to implement this system in their clinic.

But I wanted to end just my talk on more of a brighter note and just look at the benefits of AMTAS for the patient themselves. This can bring less wait times for their appointments so they can get in quicker, which always makes the patients a lot happier. It brings convenience. They can be seen at a smaller clinic, a more local VA, as

opposed to having to travel to a medical center that could be hours away in a big city. Won't have to fight traffic, which is nice.

So it's a reduction in that travel time and that distance, which is a reduction in cost to them or cost to the VA because we won't have to pay for having them travel far. Improved follow up for hearing loss care. So getting people to come back in for those monitoring exams if we need to, much easier and then reduce use of community care system and that confusing referral process and even longer wait times for veterans if we have to send them into the community. And then right here is just what the AMTASk system looks like currently in the VA. It started in.

It was implemented in fiscal year 20, we did about 52 patients. So fiscal year 23, we did 1047 for the whole year. And so far in fiscal year 24, which is not even done yet, we've surpassed all those numbers to 1070 patients seen. And the blue green dots here on the map are all the different locations where AMTAS is being conducted in the VA. And that's everything that I have.

Thank you so much and I'll hand it over to Doctor Crawford now. Thank you so much Doctor mccall. Really enjoyed that presentation. So I'm going to shift gears and talk about VA video connect. I'm over at the Phoenix VA healthcare system and this is something that we've started to employ and have hopefully some helpful information and tidbits for you.

So VA video connect, or VDC, is the VA's recommended modality for conducting video care into a patient's home using the camera on their computer, smartphone or their tablet. In the event that VVC is not available, Webex is an approved substitution, but the VA does want us to be using VVC as our primary modality. While we were under the emergency order during the pandemic, there were some exceptions for us to use other platforms such as doximity or FaceTime. But now that that emergency order is over,

those are no longer allowable platforms. But many patients and providers really did gravitate toward those systems because of their ease of use.

At the time, VVC was not as easy to use and navigate. The really good news though is that our office of connected care has done a fantastic job of hearing that feedback and adding features that are helpful and that providers and patients alike need and want. So for example, we've added the blur background. They've also made other updates just to make VVC in general much easier to navigate and use. One of the more recent updates that they've applied is with the launch of VVC now.

So VDC now is a fantastic tool that makes it so easy to create a quick link for that video appointment, and that link can then be texted or emailed to the patient on demand. So nothing has to be scheduled in advance. If you are a VA audiologist and you want to try to start using VVC now, you can go to your open up your web browser, go to your VA bookmarks, then scroll to national, and then you'll see on the list VVC now. So veteran safety during an appointment is of the most importance to us in order to make sure the veteran is able to quickly access help in case of a medical emergency or other type of emergency such as a fire. VFDO connect includes a feature called E 911 which is enhanced 911.

So a great feature of E 911 is that it is available 24 hours a day, seven days a week. How this will work is that when the patient logs in and connects to their appointment, they'll be prompted to put their address into the system. Once they've put that address in, or if they've they've not, the provider can do that at the start of the visit. The provider then at that start of the visit will pre validate their address. And this prevalidation process confirms whether or not E 911 is available at that patient's address.

If for some reason it's not available, there is an emergency relay center that can be used as a contingency in the event of an emergency. This process is really important to making sure we know if that service is available or not. And then in the event of an emergency, we can activate E 911 and that activation then will issue a temporary phone number that we as the provider can dial to reach the veterans Local 911 and get those emergency services dispatched. That temporary phone number that is issued is active for ten minutes. So another great feature is that you can also use E 911.

Even if you're using a different virtual modality such as one of the remote programming apps. You're going to still go into virtual care manager, the VCM, and once you're in there, you're going to pull up the tab for E 911 in the toolbar, and then you'll select the patient's name, enter in their address and information, and you can then pre validate their address to see again if that service is available. And you can minimize it and have it handy if needed, and then continue going about your appointment through that other modality if needed. If you need more information on how e 911 works, there are plenty of trainings available through the VA's TMS as well as through our telehealth services program. Now, as I mentioned, safety is important, as is security and privacy.

So we use this caps lock acronym to help ensure that we are following all the necessary steps to ensure that safety and privacy. So caps lock. The c stands for consent. We want to ensure a patient consents to using the video modality that they know that they can opt out and be seen in person. We also want to ensure that they are consenting to just the visit and ensure that they're in a secure network address.

We want to confirm their address again, speaking to that E 911, that's really important to ensuring that we are ready in case of an emergency and we can validate their address for E 911. Similarly, we want to know the patient's phone number, so that's where the p comes in. We also would like to have an emergency contact phone number for them so that we can reach that emergency contact in the event of an

emergency as well. And then s for survey. We want to survey the environment that the patient is to confirm that it is safe.

So, you know, we want to advise patients of the safety requirements. So for example, they can choose to sit in their vehicle, but we want to ensure that they are not driving. We want them to keep their video on throughout the course of the encounter so that we can continually be monitoring the safety of their environment. And if there is anybody else involved in the visit, we want to be sure that that person has the patient's consent and is there with permission. So that survey is important and then locks.

So this is where we lock the virtual medical room for that patient privacy. So, for example, if someone maybe has access to their email or that text message so that they cannot click on the link and join the appointment in a way that maybe is not authorized by the patient. Okay, so I referenced this earlier, but virtual care manager, or VCM, is the platform that we use here at the VA to manage our video encounters. It's a customizable platform that is set up with the preferences of the provider, their clinic schedule, and their contact information. We can also set up preferences for how we want to send out and receive notifications.

And also through virtual care manager, we're able to prepare appointment links for patients in advance, and we can schedule those links to go out at a specific time. It can also be used to share links with other VA staff members or approved family members or caregivers who will be participating in the visit. So ways in which we can use VA video connect in the VA, there's a lot of opportunities. We didn't really fully embrace this before the pandemic, but we've really been able to see since the pandemic how many great things we can do virtually. So hearing aid selections are a useful tool that we compare with those asynchronous audiology visits that doctor mccall spoke about.

Patients, they get tested through that automated audiometry, and then we can do their selection through VVC and discuss all their rehabilitative needs at that time and make a selection and order hearing aids. We can also do a hearing aid fitting and orientation, which I'll cover in more depth in the next slide. We can also do hearing aid follow up care, which there will also be a subsequent slide on this. But a quick note on the hearing aid follow up care. Patients can be fit either in person or remotely, but this can be helpful for folks who have a hardship getting into the clinic, whether it's because they live in a rural, remote location or maybe it's a major metropolitan area like Phoenix, and while they live maybe only 15, 20 miles away, that could easily mean a 45 to 60 minutes drive.

And this also can be helpful for patients who rely on transportation services or a family member to drive them to their visits. Hearing aid troubleshooting. So this is really, really helpful for you and the patients alike. So how many times have you been on a phone call with a patient or gotten a message from a patient where they're trying to describe their problem with their hearing aid and you just cannot picture what they're describing to you? Well, if you're capable of syncing up with them through a video call, that 20 minutes phone call that's not going anywhere can be resolved much easier and quicker and also save the patient a trip to the clinic and then one on one counseling.

So whether it be tinnitus, some oral rehab, vestib rehab, or just some whole health counseling, we can use a video session to do any of that one on one counseling that a patient might need after a face to face visit, if they need a little bit more in depth, focused care there. Also, it's a great way to include a family member that might not have been able to be present at the appointment, but maybe should be included for that information. And then also group sessions. There's a lot of value to bringing veterans together in a group, whether it be for oral rehab, tinnitus, or some other type of service. These are all different ways.

And we're going to just dive deep a little bit further into hearing aid fittings and orientation and what that looks like. So this is how we at the Phoenix VA employ our hearing aid fittings and orientations. We're using the demonstration hearing aids that the manufacturers have been so gracious to provide for our clinicians here at the VA. So some considerations before we choose to do a hearing aid fitting and orientation virtually. So we're typically going to do this for a patient who is a previous hearing aid user.

If they're not a previous user, but maybe a new user, we're going to ensure that they are tech savvy. And then ideally we're using Openfit Rick devices with those non custom domes. So what will happen is when we are face to face, we're going to complete a comprehensive audiometric evaluation and hearing aid selection. And then we're going to pull those demo hearing aids in to obtain program settings and complete real ear measurements. It's very important that even though we're doing this virtually, that we're not forgetting about our best practices.

And then we're going to order the hearing aids. Once those hearing aids come into the clinic, we are going to save those previously established program settings that we've verified using our real ear measurements, and we're going to save those settings to the hearing aids and mail the hearing aids with a packet of information to the patients about two weeks prior to their virtual appointment. That packet of information will contain information on how they can go ahead and get started using a hearing aid, how they can set it up with their phone and an app. And we're going to also encourage them to use the hearing aids as much as they can between getting the hearing aids and their virtual appointment so we can check in on how that's going and how things are working. And then at the time of the virtual appointment, we have the hearing aid orientation that we're going to complete so we can talk about the function of the hearing aid, cleaning and maintenance, how to use those buttons, make sure that they're comfortable with the Bluetooth capabilities, and we'll go over all the paperwork,

such as the trial period, warranty, and then of course, very important, how to order those supplies through our Denver logistics Center.

Now, if they've been wearing the hearing aid and they have some feedback that they might need some fine tuning adjustments, we can easily hop into the remote programming app and do those fine tuning adjustments. Hearing aid follow up care so this slide and the remainder of my presentation will focus mostly on follow up care as it relates to remote programming. But I want to be sure to mention that hearing aid follow up care does not necessarily have to just be remote programming. VA virtual care or VVC can be used for troubleshooting any number of hearing aid issues as well, whether that be reorienting a patient on how to use their hearing aids, showing them and reminding them how to clean their hearing aids. Change wax traps.

We can also use this an opportunity to check visually are they getting the hearing aids in and out of the ears properly. And we can also do additional hearing aid counseling. But for the purpose of this, I'll just share we do some hearing aid follow up care through remote programming here at the Phoenix, Va. But what do we do to ensure patients are set up for that and will be successful? So when we are face to face with a patient, we're going to ensure.

Usually this happens at the hearing aid fitting appointment. We're going to ensure that programming, remote programming is activated on all the fittings. We're going to pair the phone to the hearing aids as well as the app, and we are going to give them a brief tutorial on how to use the app. And being sure to always point out that, hey, remote programming is available, and here's how you can get to that within the app. So what our goal is is that every single veteran who comes through our clinic is remote programming ready and able to do this virtually if they request.

So as we're setting folks up for success on this modality, we want to encourage veterans that if they are interested, that when they call for that follow up adjustment visit, that they're requesting remote programming. If they're wanting to do that and interested, we're also notating it in our documentation to ensure that we know and can confirm that they are ready for remote programming. And then we're also doing a lot of training with our schedulers to ensure that they know to offer remote programming when patients call requesting follow up care. So the remote programming apps are great. They allow us to initiate that appointment directly through the hearing aid app.

But we have found that it is helpful to use VVC first, as it allows us to ensure that not only is the app, not only the hearing aids, functioning properly, but that the patient knows how to connect the visitor via the app. And also by being on this VVC appointment first or VVC platform first, we can also ensure that any issues that the patients have, we can likely troubleshoot through before connecting through to the remote programming. So as we dive into remote programming a little more, I want to share some data on its use over time. I reached out to all the manufacturers, and Phonak was gracious enough to provide some really awesome data to show some trends of remote care over the passage of time, and comparing the VA, which is the orange line, to the private sector, which is the blue line. So remote programming capabilities have been around for a while in the private sector, as we can see with that blue line now in the VA, however, it was really prompted by the COVID shutdown.

So looking at the orange line, we can see an abrupt appearance of remote programming at the beginning of 2020. We reached our peak use around around mid 2020, and then we really leveled off and then really just steadily declined from there as more facilities opened up to normal operational status. We can contrast though that with the blue line where post Covid, they've really remained steady in the use of remote care. So what I want to talk about in the following slides is how we can. I want to discuss some of the barriers, but also how we can overcome some of these barriers.

I think remote programming, and BVC for that matter, are fantastic tools that we can use in the VA to address some of the common challenges that we face, specifically with space and access for appointments. So just a quick overview of remote programming applications themselves. Remote programming applications can either be asynchronous or synchronous. For the purposes of the VA. We're focused in on that synchronous real time remote programming encounter with patients, some requirements.

So obviously, we need a smartphone. We need to have that remote programming app downloaded from that manufacturer to act as the interface between the hearing aid in lieu of a stable Internet connection. Patients can have a strong cell signal, but it's important to know they cannot alternate between the two. And then also it's important, some of the manufacturers do require remote programming to be activated within the software. So that's important to know what manufacturers require that and which ones do not.

There are some limitations, of course, to remote programming, number one being that you're not able to obtain real ear measurements. If this is something that is important, obviously that person will need to come into the clinic. They might not be a candidate for remote programming. Also, depending on the manufacturer, you may not be able to create or delete programs. You want to check to see if you can adjust the sound generator.

There are some that you cannot feedback calibration may not be able to be done with certain manufacturers, nor can institute audiometry and firmware upgrades.

So some barriers. Patient buying is a big barrier. Right? So who makes a good candidate for this? Well, we've already talked about some of these things, having a smartphone, being tech savvy.

But it's important to know. We don't want to judge the book by the COVID So we can put a lot of our own preconceived notions and biases into who makes a good candidate. But interestingly enough, more people than you realize can make really good candidates. If you have a patient who uses email, the likelihood of them being able to also navigate remote programming in the app software, they can likely. Also, they can do that.

If they can navigate email, maybe they're not tech savvy, they don't use email and they don't have a smartphone. If they have support at home, that can still be a really good candidate. If a caregiver or loved one can help. Some common obstacles that we see, as I've mentioned, Internet access, computer skills. What I see especially often is lack of familiarity with cell phones and apps.

And then a real big one is folks just not always aware that remote care is available. And so our job is to try to promote that awareness. So how do we do that? Well, clinic signage and handouts have been huge for us to expand our footprint at the Phoenix, VA with remote programming. So we have this poster in all of our clinical settings, and the number of discussions that this poster brings up is, is astounding to me.

So patients, when they're aware of it, they want to learn and they want to engage in this stuff. So it's not something we should discount. So if the patient isn't bringing it up when they see this poster, it's our job as providers to educate every patient on the availability of remote programming. One thing that I do, knowing that there is a willingness for patients to learn, I will demo it in the clinic when I'm setting up the app, I'll say, oh, look, and if you hit that button, here's how you can easily log into a remote

programming session with your provider. And then I also really want to promote the convenience and the accessibility benefits to the patient that can also get some buy in.

So letting them know that, hey, we have a virtual appointment open next week, so you can really get much quicker access to appointments if you choose this option. Also, it's great for those snowbirds, folks who are homebound and rural. The other barrier that we have to overcome is ourselves. As clinicians, we certainly have our own barriers that we want to overcome, one of them being lack of training. We were thrown into remote programming at the start of the pandemic, and our training was completely virtual.

That was hard. That's a hard way to learn. And so I think we need to hit the reset button. Comfort level. Our comfort level isn't that good.

So again, hitting that reset button can help with that. And I'll give you some techniques and ideas of how we can do that. Also, we have our own assumptions about the patient, so it's really important for us to not dismiss our patients by applying our own assumptions. Learning the front end setup can be a little challenging and dissuade folks from being interested in jumping into this. Also, it can be challenge to navigate connectivity and technical issues that can be a disincentivizer for a lot of providers, lack of availability of real ear measurements and then also just there are going to be some issues that need hands on care.

So these are some barriers to the adoption of remote programming, but there are some ways that we can get around that. So one way that we have championed this at the Phoenix VA is having a champion in our clinic. So we have a fantastic person on the team who's been our go to for staff. They provide answers to questions as they come up, they help problem solve when glitches arise and they also help disseminate any updates that have come through the pipeline for staff. We've had this person facilitate

in service trainings and provide one on one time for this person to work with the manufacturer so that they can then disseminate the information.

But also we found it helpful to let staff have one on one sessions with the manufacturers to get that one on one training when the stakes are low and they have time to really soak up the information and get that information in real time. Providing a full day of virtual clinics each for each provider is great. If we can do that once a week, that's a great goal to hit. And then the incentive to go work from home during that full day of virtual care is a really great way to get clinicians to buy in. And then also, as cheesy as it sounds, it can be really rewarding to see patients find success and be really excited and happy when they've done something new and technologically oriented.

And that to me is really, really rewarding and makes me want to keep doing it. So just to wrap up, I want to share a case study on how virtual care has been helpful for us in Phoenix. At the beginning of fiscal year 21, we had three providers and technician. We were really limited by space. We had 1100 square feet.

The idea was though, if we ramped up our virtual visits from maybe four a week total, maybe we could do more and maybe shift some of our care out of the clinic to telework and open up enough space to bring on a national full time employee to focus in on that face to face time, wait time and improve our access for the face to face care. So we did. We expanded our virtual care counters up to six to nine per provider each week. That's what this graph reflects, is how we revved up those encounters. Space didn't change at all, but we were able to free up some clinical space by shifting those providers to telework from home during those virtual days.

And indeed, it helped us free up enough space to hire a fourth audiologist, and our access improved significantly. So over the course of a year or two, we improved our

wait time by almost three weeks. So this was a huge win for us. And the take home point is that this can be a really great tool to use in the VA, especially when clinical space is a challenge and wait times are a priority. This concludes my section.

I'm going to pass the baton over to Doctor Lindwall.

All right, thank you, Doctor Crawford. So we'll switch gears one more time.

So one new initiative the VA is pursuing is providing audiology video appointments at Atlas sites, and Atlas means accessing telehealth through local area stations, and these stations are partnerships between the VA and veteran service organizations.

The Atlas site provides a private pod for video appointments for veterans who otherwise would have a long travel time to the nearest clinic or who otherwise might not have the equipment or Wi Fi connection needed for a video appointment. The video platform used at the pod is VA video Connect. There is an on site attendant to assist with the check in process and who is available to troubleshoot the equipment if needed. There is no TCT present.

This map shows the location of the Atlas pods throughout the United States. The locations demonstrate partnerships between the VA and local veteran resources. Typically, the Atlas pods are at VFWs or American Legion posts, but they could occur at any other veteran centric location, too.

The first and so far only Atlas site to offer audiology services is located in Eureka, Montana, and that's a small town of about 1300 people in the northwest corner of the state. The pod in Eureka is at the VFW. The nearest clinic is about an hour and 15 minutes drive away from Eureka. We started to offer audiology services in August of 2023. The video services provided include four week hearing aid fitting follow ups,

hearing aid troubleshooting, remote programming, assistive listening device fitting, and follow up, and tinnitus education.

We do use an Atlas dashboard tool to identify veterans who live closer to an Atlas site than a VA facility. We also use this tool to determine which of these veterans have had an audiology appointment within a specified timeframe.

Once these potential veterans are identified, we call them to explain the new service and what audiology services can be provided. We also explain what to expect during an appointment. The veteran is interested. We contact a dedicated scheduler who will also speak with a veteran to confirm the appointment date and time, and they also provide a six digit code to the veteran that is needed to log into the appointment. An appointment letter is sent out to the patient with all the appointment details as well.

Veterans are also welcome to contact our service directly to schedule an Atlas appointment. When it is time for the appointment, the veteran checks in with the pod attendant. The attendant assists the veteran with logging into the video visit. Once the provider also joins the visit, then the attendant leaves the pod and the appointment progresses forward. As always, the appointment starts with verifying the patient's identity and emergency contact information and all the emergency and privacy procedures that doctor Crawford already mentioned.

Veteran feedback about this program so far has been overwhelmingly positive. These appointments do save travel time and provide the Internet connection needed in an otherwise very remote area. The Atlas program bolsters the partnership between the VA and veteran service organizations. There is a designated scheduler who we can count on for all Atlas scheduling needs. Also, there is a site attendant available for check in, connecting to the video appointment and for troubleshooting that equipment if needed.

In terms of providing tinnitus education and hearing aid troubleshooting tips a nice feature of VA video connect is that you can send patients a link to websites and videos to watch during the appointment that are pertinent to the needs of the appointment.

For challenges like any piece of equipment, there are occasional equipment breakdowns and it can be a lengthy troubleshooting process.

Remote programming can also be tricky if you've ever tried to download and work with a hearing aid app inside a sound booth. It's a similar situation in the pod, so the veteran may need to step outside of the pod for a strong Wi Fi connection to work with an app and complete that remote programming. Further, only a subset of audiology services that I mentioned earlier are available as we are not able to plug equipment into the pod and there's no TCT present. Finally, when an Atlas appointment is scheduled, the veteran does receive that unique six digit code to enter at the time of the appointment, but it's often the case that the veteran forgets to bring the code to the appointment, but thankfully, the provider does have the code and can call the veteran with this information if needed.

We are looking forward to offering more services at Atlas sites as this initiative expands. If peripheral equipment could be used in the future, we could offer automated audiometry services and follow ups. We do plan to expand services to university Atlas sites in Missoula at the University of Montana and in Bozeman at Montana State University. To be scheduled at those sites, a patient must be both a student at that university and a veteran. These sites could offer a great opportunity to provide progressive tinnitus management.

Finally, we hope to motivate other vas to use these established Atlas sites for audiology, as we found veterans to greatly appreciate the enhanced access to these

audiology appointments with the reduced travel time, we have worked hard to get the word out about this service. We had an open house in September and provided education about this new service to home based primary care providers at nearby VAs. Later this month, representatives from the Veterans Experience Office and Atlas program managers will conduct staff site visits at all three Atlas sites in Montana. This will really be a great opportunity to further promote these tele audiology services.

Here, I've listed some best practices to ensure a thriving Atlas practice. First, the dashboard tool is useful to identify veterans living near an Atlas site who may benefit from these services. You can start to determine which clinical services that do not require the hands on examination could be appropriate for this population. Identifying clinical champions is crucial for success. Champions confirm appropriate clinical services to provide, they assist with developing a schedule, and they help with identifying a dedicated Atlas scheduler.

Really, the clinical champion assists with all the best practices that I'll mention here. Open communication and collaboration between the VA and veteran service organizations is important for both promotion and expansion of clinical services and for ensuring that this telehealth equipment is in good working order.

Ongoing communication among VA providers, schedulers, and veterans is also key. For example, it's best practice to verify the veteran has the unique appointment code prior to the appointment time. You can also assure the veteran that the Atlas pod is open for the appointment, even if the veteran service organization would typically be closed at that time. It is important to provide outreach to VA staff, veteran service organizations, and veterans regarding what services are provided and how to access them. Similarly, it's good practice to host an open house at an Atlas pod.

That'll just increase the awareness of the clinical services that are provided at the open house. It's recommended that veterans have hands on and live demonstrations of the equipment so that they feel comfortable using it in the future. It's also useful to have informational materials available that include clinical services provided and local contact information showed a veteran desire to schedule an appointment.

So I wanted to give you just a quick and simple example about how an Atlas site can be utilized. In this case study, the patient is a 75 year old veteran with 2022 hearing aids. He lives in Eureka, Montana, so the Atlas pod is very convenient for him.

Otherwise, it'd be an hour and 15 minutes drive away if the weather was good. At our first visit, I learned that the patient is very pleased with the benefit and the sound quality of the hearing aids.

He was experiencing poor retention of the domes in both ears. He had some difficulty hearing on his cell phone as well. We reviewed the maintenance of the hearing aids. I gave the veteran the Bluetooth tech support phone number, and I sent the patient several sizes of domes to try to enhance retention, and we made a plan to follow up in four weeks.

At our next visit, we reviewed the different dome sizes the patient had trialed, and we settled on a new size that did afford a good fit for them. We reviewed how to order the supplies when they're needed.

The veteran let me know. He did contact tech support and found that his cell phone is not compatible with the hearing aids. But no big deal. That cell phone connection. The cell phone wasn't something that he used much anyway.

Then he mentioned a new concern, not hearing his wife well, who has a very soft voice. So we discussed trialing a remote microphone. We made a plan for another four week

appointment. I ordered the microphone, sent it to the nearest VA for processing, and from there, the microphone was mailed to the patient.

At the next visit, we just verified the patient did receive the microphone and it's paired to the hearing aids. We reviewed the function of the microphones or of the microphone. The patient continues to be very pleased with the benefit of the hearing aids and now of the remote microphone. So at this point, no further follow up was needed. We ensure the patient feels comfortable contacting the nearest VA for hearing evaluations and requesting any future Atlas appointments.

And just to wrap it all up now, AMTAS, VVC, and remote programming and atlas appointments can all be used to enhance access to VA tele audiology services. The asynchronous amtest technology provides diagnostic hearing evaluations while overcoming inadequate staffing and physical space limitations. VVC and remote programming allow for a variety of audiologic services and hearing aid follow up care while the veteran is at home. Finally, telehealth appointments at Atlas Pods serve to reduce travel time and provide a private and secure environment in the community with all the necessary equipment needed for a VA video connect appointment.

So thank you everybody for your time and attention today. We really appreciate it.