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## Introduction to HearLink 9040

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Presenter: Sarah Hunkele, AuD

- [Sarah] Thank you for joining me for today's course, where together, we are going to learn about the newest product offering from Philips, the HearLink 9040. My name is Sarah Hunkele and I will be your host today. I am the Audiology Education and Training Manager, and I'm responsible for providing education and training on Philips products and fitting software. I have worked in the Demant organization since about August 2016, and I do have previous experience in both clinical and non-clinical settings. I received my Master's degree from Northwestern University and my doctoral degree from Salus University. Before we dive into our course material, let us quickly review today's learner objectives. So our first learner objective is to be able to analyze the feature improvements of the Philips HearLink 9040 and how they benefit members who are both new and current hearing aid users.

Second, to assess how to apply SoundProtect Wind Noise Management and SoundProtect Transient Noise Reduction based on member feedback, and counsel members on the availability of Philips HearLink 2 app, and demonstrate understanding of hearing instrument and device compatibility. To begin, we are going to look in detail at the HearLink 9040 product portfolio. We will discuss the products being offered and then go into a brief overview of options and features, focusing on those that are new to the HearLink 9040. We are very excited to bring you the many things that are new with the Philips HearLink 9040 and all the features that set this hearing instrument apart. The HearLink 9040 is offered in four BTE styles and gives your members the benefit of SoundMap 2 Plus with AI sound technology powered by the new SoundProtect feature.

For those members wanting even more options when it comes to colors, the HearLink 9040 is now available in a beige beige color for all miniRITE and BTE styles. There are additional programming options such as Notify Me for voice alerts when the hearing instrument's battery is low and enhanced data logging with environments and connection count to gain insights to the members' conversation activity and hearing progress. And the HearLink 9040 is fully compatible with the new HearLink 2 for remote

control and remote fitting functionality in one app. The HearLink 9040 is available in our four BTE styles and offers premium level technology. This product is offered in our miniRITE T, miniRITE TR, mini BTET, and mini BTETR styles. The HearLink 9040 miniRITE TR and mini BTETR use the same contactless charging system as the HearLink 9030.

Therefore, the desk charger and Charger Plus have not changed, and both are compatible with the HearLink 9030 and 9040 rechargeable hearing instruments. Overall, the look and feel of the Philips HearLink 9040 will be very familiar, however, I would like to take some time to discuss this new addition to our product family, beginning with the HearLink 9040 miniRITE T and miniRITE TR instruments. Some key features of the HearLink 9040 miniRITE T and miniRITE TR include six color combinations featuring the new beige beige color option, an IP68 rating, an LED light, the dual push button, 312 plus lithium ion for the miniRITE TR or zinc air battery for the miniRITE T, and compatibility with our OpenBass dome and MicroShell mold. In addition to the OpenBass dome and MicroShell mold, the HearLink 9040 miniRITE T and miniRITE TR are compatible with a variety of other acoustic options.

Two include the bass dome double vent, power dome, and our full line of custom mold options. To keep things streamlined, the miniRITE instruments will use the existing miniFit speaker units, which are available in four fitting levels, the 60, 85, 100, and 105, the last only available with a custom power mold. Pictured here are the fitting ranges of the various speakers available for the HearLink 9040 miniRITE instruments. So as has been discussed in previous courses, fitting ranges of these speakers are based on numerous factors. These factors include the member's audiogram, ear canal acoustics, the device that's being fit, and the earpiece that is chosen, just to name a few. A very general rule of thumb advises the 60 speaker fits up to a 60 dB loss, the 85 speaker up to an 85 dB loss, 100 speaker up to a 100 dB loss, and the 105 speaker up to a 105 dB loss.

However, for more in-depth information on fitting ranges and speaker output, I would encourage you to view the specification guides that are posted on the Costco Philips internet portal. These guides provide greater detail about the full scope of technical data for these products. The next addition within the HearLink 9040 product family is the mini BTET and mini BTETR. The HearLink 9040 mini BTET and mini BTETR should also be familiar. However, let's review the key features. The mini BTE style is also available in those six color combinations to include the newest color offering of beige beige. It also has that IP68 rating, an LED indicator, a single push button, a size 13 lithium ion battery for the mini BTETR style, or the size 312 zinc air battery for the mini BTET style, and uses either a thin tube or ear hook acoustic option.

The HearLink 9040 mini BTE supports all existing miniFit thin tube options. Therefore, it is compatible with both the 0.9 millimeter and 1.3 millimeter thin tube acoustic options. The HearLink 9040 mini BTE also supports the same newly designed ear hook that was introduced with the HearLink 9030. This ear hook is cosmetically more attractive since it is more transparent than previous ear hooks, and the damper is placed at the tip of the ear hook for easier replacement and higher output. Choosing between a thin tube or ear hook will guide the available acoustic options for the HearLink 9040 mini BTE. However, the compatible domes and custom earpieces remain the same from what was available with the HearLink 9030 to what is available with the HearLink 9040. Options do include the OpenBass dome, base dome double vent, power dome, and then the variety of available custom ear molds.

Pictured here are the fitting ranges of the HearLink 9040 mini BTE instruments for both ear hook and thin tube options. The mini BTET and mini BTETR styles fit up to a moderately severe hearing loss if fit with a traditional tube and mold. For those with a mild to moderate hearing loss, a thin tube option with the customized earpiece is also available. Once again, for more in-depth information on fitting ranges, I encourage you

to view the specification guides that are posted on the Costco Philips internet portal. These guides provide greater details about the full scope of technical data for each of the products. Now that we have spent some time reviewing the exciting new addition to the HearLink product portfolio and discussing the new styles within the HearLink 9040 family, let's go ahead and move on to an overview of the new features within the 9040 technology.

The HearLink 9040 is our premium level of technology and therefore continues to offer programming in 24 fitting bands and a choice of 13 environments for preset programs to choose from if needed. New additions to programming options include Notify Me, which is a spoken low battery notification that is available in nine languages and is configurable in the HearSuite programming software. Notify Me is available in English UK, English US, Chinese, Danish, French, German, Italian, Japanese, and Spanish. The HearLink 9040 also features enhanced data logging. This new information includes new statistics such as environments and connection count. This new information gives a great deal of insight into the time the member has spent in various environments and whether they are quiet or noisy, and whether the member is conversing or not in these same environments.

The new data logging information also provides trending data, and this data gives further insight into how the member is performing over time. These new statistics are very useful counseling tools and keys to followup fine tuning. To learn more about these new programming options, please visit the course What's New in HearSuite 2023.1. The HearLink 9040 mini BTE and miniRITE continue to offer frequency bandwidth of 10 kilohertz, and full SoundMap amplification options with low frequency enhancement when streaming, and our patented SoundMap feedback cancellation system. Here you can see the SoundMap Noise Control and directionality options for the HearLink 9040. As a premium product, the HearLink 9040 has a full range of

options available for flexibility in programming to meet all of your members' sound quality needs.

Within SoundMap Noise Control, the HearLink 9040 also has several special noise management features. In addition to soft noise management and binaural noise management, the HearLink 9040 has SoundProtect Wind Noise Management and SoundProtect Transient Noise Reduction. SoundProtect Wind Noise Management is a new way of managing wind and handling noise. SoundProtect Transient Noise Reduction is designed to bring added benefit to members who are sensitive to transient noises. Now that we have a basic understanding of the HearLink 9040 product family and we have touched slightly on the technology within SoundMap 2 Plus, let's go ahead and dive a bit deeper into what is new and discuss some of the details. SoundMap 2 Plus builds on the success of AI sound technology. With the introduction of HearLink 9040 and SoundMap 2 Plus, AI sound technology is made stronger with SoundProtect.

Artificial intelligence in the noise reduction process has taught itself the optimal approaches to reduce noise, and SoundProtect effectively and quickly reduces challenging noise sources, which then delivers a cleaner signal to the AI sound processing. SoundProtect is a new block under SoundMap Noise Control, and it is designed to preserve the target signal in the presence of wind and contact noise, and thus reduce the overall annoyance of these everyday noise sources. SoundProtect, together with AI sound technology, not only manages to make sure the hearing instruments are reducing noise intelligently, but are also further improving the sound quality and noise by not letting these disruptive sounds get in the way of the signal pathway. This new block in SoundMap Noise Control is comprised of both SoundProtect Wind Noise Management and SoundProtect Transient Noise Reduction.

With the HearLink 9040 and SoundMap 2 Plus, there is a big focus on noise management, and that is by design. This is because disruptive noises are a challenge for both hearing instrument wearers and hearing instruments themselves. So we know that external noise is addressed effectively by directionality and by AI noise reduction, but noise generated at the hearing aid microphone, and for example, this would be wind, noise, or manual handling noises, or noises which are very fast and abrupt such as transient noises, can disrupt the signal before that signal can be processed effectively. Once the signal is affected by these noises, it is very challenging for the hearing aid to fix it, and this is why we need a fast and effective noise management system that can use multiple strategies to stop these disruptions before the signal can be further refined by the AI noise reduction.

Before we go ahead and look at each of the individual parts, let's look at SoundProtect as a whole and visualize exactly how it works within AI Noise reduction. On this slide, the wind and the transient noise is met by SoundProtect, which applies two strategies to reduce these unwanted sounds before the signal is further cleaned by AI Noise Reduction. It uses a 24-band microphone analysis designed to efficiently reduce the incoming wind noise, and it applies fast and accurate gain reduction to the incoming transient noise. Once the signal passes through SoundProtect, it is delivered to AI noise reduction, resulting in a cleaner and clearer speech signal for the member. Breaking SoundProtect Down further, let's go ahead and first look at SoundProtect Wind Noise Management in detail.

So SoundProtect Wind Noise Management is an updated wind noise management feature, and it is designed for members who are disturbed by wind noise and have difficulty hearing speech in these windy situations. It is also helpful for those members who are bothered by unwanted noise that is associated with the manual handling of the hearing aid, such as adjusting the hearing aid, brushing over the microphones, et cetera. Here we see some examples of when SoundProtect Wind Noise Management

would potentially detect a disturbing noise source. In turn, SoundProtect Wind Noise Management would then work to reduce that same noise source prior to it reaching AI noise reduction. Next, let's go ahead and look at how it works to do this.

Wind and handling noise are detected by both the front and rear microphones at different moments, and this creates uncorrelated noise. This is caused by turbulent air reaching the microphones at different times. So uncorrelated noise is characteristic of both wind noise and handling noise with the hearing aid. SoundProtect Wind Noise Management counters this noise by a careful analysis of the noise level in each microphone. It then selects the microphone with the lowest noise level for each band, and will adjust this selection over time. By doing this, it ensures that the cleanest signal is allowed to reach the AI noise reduction. Let's now go ahead and look further at SoundProtect Transient Noise Reduction. SoundProtect Transient Noise Reduction essentially reduces sudden sounds, especially for members who are sensitive to these sudden louder sounds.

This feature employs an updated algorithm which helps to balance transient sounds in the overall sound scene through a faster detection and reduction of sudden sounds in situations where speech understanding is important. Here we see some examples of when SoundProtect Transient Noise Reduction would potentially detect a disturbing noise source. In turn, SoundProtect Transient Noise Reduction would then work to reduce that same noise source prior to it reaching AI noise reduction. Next, let's go ahead and see how SoundProtect Transient Noise Reduction works to do this. So at SoundProtect Transient Noise Reduction, it monitors the overall sound level of the environment and calculates the average sound level of the sound environment. When a sound is considerably above the average sound level, the system will go ahead and consider that a transient sound and quickly reduce it.

SoundProtect Transient Noise Reduction employs frequency-specific band reduction instead of broadband reduction for transient noises, which leads to better preservation of signal and ultimately a clearer signal before it is processed by AI noise reduction. Transient sounds in quiet environments will have less attenuation, and transient sounds in louder environments will have more attenuation. Transient sounds are attenuated before the input signal is compressed, hence, it is not overamplified. Once this is complete, the signal is then processed by AI noise reduction. SoundProtect Transient Noise Reduction includes six settings which do vary from off to maximum, offering a reduction of up to 30 dB. For more details on the HearSuite settings, I do encourage you to visit our course What's New in HearSuite 2023.1.

So here are some key takeaways regarding HearLink 9040 with SoundMap 2 Plus. It is an extended premium line with technology upgrades on the SoundMap Noise Control module. SoundProtect handles unwanted sounds that could cause distraction and irritation when wearing hearing aids. SoundMap 2 Plus with SoundProtect results in faster and more precise handling of wind and handling noise, and has an improved handling of disturbing sounds including sudden loud noises and soft transient sounds that are associated with everyday living. Thus far, we have discussed the HearLink 9040 product and the many new features and advances in technology that set it apart. Let's now take what we have learned and apply it within a case study as we move the member from fitting to followup.

So case study one. The member is an experienced hearing aid wearer currently fit with Philips HearLink 9010 miniRITE T. The member recently reported an increased difficulty with speech understanding and noise, and fine tuning has resulted in slight improvements, but not to the level that the member is completely satisfied. Recent testing shows some decline in thresholds, and the member has a preexisting sensitivity to loud sounds. The member is interested in upgrading to new technology. So here you can see the member's audiogram with a moderate to severe sensory neural hearing

loss, SRT of 50, MCL of 70. Very good word recognition score at 85. No significant medical history, but a reported history of sensitivity to loud sounds. So after testing, the member chooses to upgrade to HearLink 9040 miniRITE TR hearing instruments.

The instruments were initially programmed based on first fit protocol and set to 100% adaptation since the member is an experienced hearing instrument wearer. At the initial fitting, the member did report that sound quality was overall very comfortable and speech understanding was improved. Notify Me was also activated to help the member differentiate the low battery warning. From HearLink 9010 to HearLink 9040 hearing instruments, there have been vast improvements to technology and feature offerings, and this member is able to take advantage of these improvements to improve his overall speech understanding and noise and listening comfort. During the initial fitting, while the member reported overall sound quality and speech understanding to be improved, we can also anticipate issues the member may have due to the preexisting sensitivity to loud sounds.

By default, SoundProtect Transient Noise Reduction is set to medium, but knowing this member's history in discussing these concerns, SoundProtect Transient Noise Reduction is moved up to very high to give the member up to 10 dB additional transient noise reduction. Addressing this member's concerns at the initial fitting through adjustments to advanced features of the HearLink 9040 will not only improve the member's experience but also potentially cut down on followups needed for fine tuning adjustments. In our final section, we will look at the HearLink 9040 and connectivity. The HearLink 9040 is compatible with our current full portfolio of Philips wireless accessories. It offers hands-free communication with compatible Apple devices, direct streaming with compatible Android devices, and works with the Philips HearLink 2 app for both remote control and remote fitting.

As stated, the Philips HearLink 9040 series supports all accessories including the Philips HearLink 2 app, the TV adapter, the remote control, and the audio clip. Here is an overview of compatibility for the HearLink 9040 miniRITE and mini BTE styles. To determine smartphone compatibility, I always encourage checking our compatibility page on the Philips website. This is going to give you the most up-to-date information regarding streaming and app compatibility. And our newest addition to the Philips SoundTie 2 portfolio is the HearLink 2 app. The new HearLink 2 app is compatible with the HearLink 9010, 9030, and 9040 instruments, provided they have 2.4 gigahertz wireless technology. It combines remote control and remote fitting in the same app. It has a new icon with a streamlined user interface, giving easier access to remote fitting sessions.

It has enhanced support with detailed troubleshooting, and is compatible with smartphones using operating system iOS 15 and Android eight or later. Remote control functionality includes VC, program chain, streaming equalizer, and Find My Hearing Aids, and again, combines that support for remote fitting and pairing connectivity support and troubleshooting. For more detailed information on the Philips HearLink 2 app, I do encourage you to visit the course HearLink 2 App and other resources available on the Costco portal. Members can continue to use Philips HearLink for remote control purposes only, but should be encouraged to transition to HearLink 2 as soon as possible. Eventually the HearLink app will be phased out and all members will be directed to use the HearLink 2 app for both remote control and remote fitting purposes.

You will also notice that with HearSuite 23.1, the HearLink 2 app is the only option for remote fitting. For more information on HearSuite compatibility, please visit the What's New in HearSuite 23.1 course. And this brings us to our final case study. In our final case study, we visit again with our member who upgraded his Philips 9010 miniRITE T instruments to the HearLink 9040 miniRITE TR instruments. So the member recently

upgraded to HearLink 9040 miniRITE TR but discusses with you that he is an avid gardener and would like to keep his HearLink 9010 miniRITE T instruments for use when he is gardening. The member often streams music from his phone and uses the HearLink app for volume adjustments. During his most recent followup, he noticed the changes with the app and was concerned about compatibility.

So as a refresher, here is the member's audiogram and the sound settings from HearSuite. Note that you have already made some adjustments to the member's sound settings to give him a bit more low frequency enhancement when streaming from his phone. This member was concerned about compatibility of his HearLink 9010 instruments with the new HearLink 2 app, so during his followup appointment, you were able to discuss compatibility with the member and ease his concerns, advising him that the app was compatible with both his HearLink 9040 instruments and his HearLink 9010 instruments. Therefore, the member can have either set connected and seamlessly use the HearLink 2 app for remote control purposes. So we have spent some time discussing Philips HearLink 9040 and those features that set it apart.

However, here is a quick review of what we have talked about throughout today's course. The HearLink 9040 is premium technology offered in four mini right and BTE styles, the miniRITE T, miniRITE TR, mini BTET, and mini BTETR. The HearLink 9040 boasts many new features and advanced programming options, to include the Notify Me voice indicator for the low battery warning and the improved data logging information gathered via environments and connection count. Perhaps one of the most important topics discussed with SoundMap 2 Plus was SoundProtect and the two new noise management systems, SoundProtect Wind Noise Management and SoundProtect Transient Noise Reduction. SoundProtect improves predicted speech intelligibility by improving the signal quality in noise. And finally, HearLink 9040 is compatible with the full line of wireless accessories in the SoundTie 2 portfolio,

including the newest addition, the HearLink 2 app which is one app for both remote control and remote fitting functionality.

I wanna thank you for joining us today. If you do have any further questions, please feel free to reach out via the contact information listed. Additional resources will be made available on the Costco portal, and available for access and download at your convenience.