Freedom to Speak: Hands-Free Speech after Laryngectomy

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- [Amy] Once again welcome to the speechpathology.com webinar sponsored in partnership with ATOS Medical. Today's event is Freedom to Speak: Hands-Free Speech after Laryngectomy. Our presenter today is Yumi Sumida. She has 12 years of experience working as an SLP in the specialty areas of voice and swallowing. This experience has provided extensive opportunities in laryngectomy care including management of tracheoesophageal prosthesis, electro larynx training and pulmonary rehabilitation. In addition to her clinical work Yumi has presented locally and nationally has served on ASHA's Multicultural issues board, and she has also contributed to content on ASHA's practice portal. So we're very pleased to have her here with us today. Welcome Yumi. I'm going to turn over the floor to you.

- [Yumi] Thanks, Amy. I am so delighted to be with you all. Thank you all for tuning in. I'm really excited to bring this course to you today. It's such a unique offering in the world of laryngectomy care. Not only will we be talking about tracheoesophageal speech, TE speech after laryngectomy, but we'll be talking about TE speech after laryngectomy hands free, so it's quite unique. This is our disclaimer. And my disclosure is I am a clinical educator and I am delighted to be in this company. There are four things that all of you should be able to do by the end of this course. One, describe findings from existing literature relevant to hands free device feasibility, utilization and candidacy. Describe the purpose and mechanics of hands free speech devices. Identify factors to consider when fitting a patient with a hands free speech device. And then a related objective, identify problems and solutions related to hands free device use and misuse. Now as we step through the slides, I will try to point out those slides that have some content that's related to the competency quiz. So I'll give you a little heads up there if I can. And as Amy said, I will try to take questions through the flow of the presentation, but there's a good chance that I will really get to most of them at the end. Now I'm gonna start by setting the stage with a few preliminary thoughts and a particularly sobering statement. Head and neck cancer strikes at the most basic human functions, the ability to communicate, eat and interact socially. Yes, I am stating

the obvious. But I think it's worth stating, and reminding people that laryngectomy has a profound impact on function. But there's more. We know that laryngectomy can actually also impact one'd sense of identity. There's a relationship between voice and identity. In this qualitative study by Bickford and colleagues, they highlighted that this team sharpened team further expounded on this and really revealed some of the more nuanced findings about humor, and personality. And if any of you know me, you would know that I value humor tremendously and I can't imagine life without that connection we all experience with laughter. There's more. Not just function is impacted, not just identity, but there's a connection between mental health and communication. Now I think I might be preaching to the choir here because as speech pathologists I think we all of us have an intuitive understanding of the interrelatedness of communication, social interaction, and mental health.

So, it's not surprising to us that many people after laryngectomy can feel stigmatized. It's not surprising that mental health, good mental health is correlated with successful voice rehabilitation. It's not surprising that changes in socialization can result in fewer contacts, more isolation. And in this study at the bottom here, this is a particularly, I thought, shocking finding. In this study, 80% of individuals who had not acquired functional voice at the one year post laryngectomy mark, were alcohol dependent. Shocking when you consider that alcohol is considered an accelerant for cancer and recurrence.

So yes, there's definitely a relationship between mental health and successful voice rehabilitation. Dr. Brooke, not only a doctor and an investigator, but Dr. Brooke is also a laryngectomy demonstrated that people after laryngectomy who use tracheoesophageal speech actually have more social contacts than other a laryngeal speakers or other a laryngeal communicators. Now, to take that a little step further, He further demonstrated that not only do tracheoesophageal speakers have more social context than other a laryngeal speakers, but tracheoesophageal speakers used a

hands free device, had the most social contexts. And we know not just from this Lydiatt and Moran study, but from other studies that social interaction can facilitate recovery and decrease social isolation. So this begs the question, then, what is a hands-free speaking valve? So let's start here. And in the way of review, let me get my arrow going. And in the way of review, let me begin with this diagram here. So in this diagram here, we have pictured the mechanism for tracheoesophageal speech. And just as a reminder after laryngectomy the trachea is redirected forward after the larynx is completely excised, the trachea is sutured to a permanent opening in the neck called the stoma or the trachea stoma. For somebody who uses a voice prosthesis that voice prosthesis is pictured here. It's a small silicone shunt that sits between the trachea and the esophagus.

Now, when somebody goes to speak, here we have pictured of the heat moisture exchanger which is necessary for good pulmonary health, it's attached over the stoma an individual would occlude or cover their stoma. By doing so the air travels up through the trachea is shunted through that little valve, travels through the pharyngeal esophageal segment. Now this pharyngeal esophageal segment is quite narrow and the tissues of it approximate or touch.

So as the air flow through that area, the tissues vibrate and they vibrate one against the other. So the tissue touches that vibration of tissue against tissue generates sound, which is then transformed into speech. I want you to consider something. When somebody uses TE speech with a voice prosthesis and manually includes, what are they doing? They're essentially pointing to their stoma pointing to their difference, saying, "Look here, "I'm different." It's something to consider. Now, with a hands free device. That's not the case. So let me explain this, a hands-free device is attached to an HME, which is that little cover here that's necessary for good pulmonary health. And that hand-free device works in this way. With the right type of exhalation with a little extra push, that hands-free device, the valving mechanism is triggered and it closes

essentially occluding, the stoma, then everything works in the similar manner, the air is shunted through the prosthesis, the pharyngeal esophageal segment vibrates, and so on. I want to introduce a very important idea at this point, very important construct. It's called intratracheal back pressure. And the reason I want to introduce it here and now with this diagram is because I'll be talking about it more as we go through the presentation. So what is it? So here with a hands-free valve as the valve occludes, and that air pushes up through the trachea, it encounters resistance. There are two sources of resistance and let's call this the tracheoesophageal vocal tract. So there are two sources of resistance in this tract. The first source of resistance is this. It's actually the voice prosthesis. The second source of resistance is the pharyngeal esophageal segment.

So what do I mean? So the air travels through a large tube, and it has to be shunted through a very narrow, small opening, and then through another narrow area, those two narrowings create resistance. And as a result, there's a buildup of pressure here. With my little arrow, there's a buildup of pressure here and that's called intra tracheal back pressure. Now, it's neither a good thing nor bad thing. It simply is, it's a result of the altered physiology. But here's one of the negative things. For some individuals, the tissue around the stoma, this peristomal tissue has some laxity to it. So when they use a hands-free valve, you will see some or you might see some movement or billowing of this area, and we'll return to this point again.

So, moving forward here. Now, let me start introducing you to the literature base. Let's consider the first study about hands-free speech. This was actually done in 1982 by Dr. Blom and colleagues, and it was done performed using their first generation Blom, Singer tracheostoma valve. Interesting study. It was an n=50. The study interval was actually 10 months not 10 weeks, it identified several problems that we'll seem repeated in other studies. But what's fascinating is your talk about feasibility is tracheoesophageal hands-free speech feasible? Yes, actually, the whole cohort was

able to use or produce this type of speech. The problems that they encountered. First of all, unintended valve closure with airflow changes, what am I talking about? So it's this, if I were to sit quietly and just breathe lightly and listen to classical music My airflow would have a certain amount of pressure. If I get on the treadmill and start running, I start breathing a little bit heavier with the exertion and my airflow changes. So we all have a variable airflow. Similarly, if I talk very quietly, my air pressure, my airflow is at one level, whereas if I start projecting my voice, it changes. So our airflow not only changes with exertion, but it also changes with communication style. So this was one of the things that they identified in this very first study that sometimes the valving mechanism can close inadvertently with the airflow changes.

The second finding that we'll again see repeated multiple times is that it's very difficult to maintain a really good seal with the attachment whatever attachment you're using to attach that hands-free valve over the stoma. It's important to maintain a really good seal that seal can break. It can break as a result of intratracheal back pressure. It can also break because sometimes peristomal terrain is highly variable. So just to step back through that intratracheal back pressure my favorite topic here. It's a direct reflection of the resistance of the new vocal tract.

And it has two sources the pharyngeal esophageal segment and the voice prosthesis itself. Now, as an interesting aside, it was as a result of this study that Dr. Blom and Singer began to innovate. And it was partially as a result of this study that they introduced a larger diameter prosthesis. So in this initial study, they were using a 16 French prosthesis, but this particular investigation into hands-free speech prompted the development of a 20 French prosthesis, in part to reduce the inter tracheal back pressure by reducing the resistance that was experienced at the level of the voice prosthesis. Another innovation, they developed a hinged valve which is now the standard in most voice prostheses. Now, more investigations. What about feasibility, compliance utilization? Well, Op de Coul and colleagues looked at those very

questions in 2005. They had an N=79. All of who used a hands-free valid for six months. And so the question was, is it feasible? Did people use it? Well, at the six month mark, yes 76% were using the hands-free valve. How were they using it? What was the utilization like? Well, 20% were using it on a daily basis. And most people who continue to use it, were using it, what we call situationally, when they needed to. Again, this study further emphasizes some of the barriers so again, the fixation or the attachment of the hands-free valve, that seal can be a barrier for some people if they can't achieve the seal. Again, the intratracheal back pressure can contribute to that. And again, there was some spontaneous closure of the device during changes in airflow. What about more studies?

What about utilization? And what about patients subjective impressions? In this 1996 study, that was an N=30. Again, individuals use these hands-free devices for a range, but on average in this study, six months. Feasibility, just about everybody was able to use it, utilization in this study 30% used it all day. But again, another theme here, is situational use. Most people used it situationally, when they needed to for important visits, maybe for work or recreational activities. And that makes sense, right? I use my sunglasses situationally, when I go outside, I put them on. when I come inside, I take them off. So it's the same principle. Interestingly, in this study, 83% of the participants felt less handicapped when they use the hands-free speaking valve. This study by Lorenz in 2007, similar design. Again, laryngectomees an N=20, used hands-free valves for six months.

What was feasibility? What did that look like? Overall, 88% of those participants felt that it was an advantage to speaking hands-free. 74% reported speaking hands-free decreased their level of disability. So lessons learned from the literature, feasibility, yes, it is feasible. Utilization, well, situational use seems to be the norm or seems to be the way most people use these devices. Barriers to utilization, the seal, the seal, the seal, it's very important to learn how to achieve a really good airtight seal with your

attachment. A seal cam be interrupted not only by intratracheal back pressure. But it could also be informed by the peristomal typography, which is really quite variable. And again, unintended valve closure during changes in airflow is another barrier. So these obstacles are important because they're actually gonna inform patient candidacy for these devices further down the line. Let me introduce another study here. This is called the ReD Associates study. So this is not a study you will ever have heard about, and there's a reason for that. The ReD Associates are a market research company. And the people that they hire, have backgrounds in anthropology and journalism. And what they do is they investigate populations by using things like ethnographic interviewing and journalistic strategies to learn more about the hidden needs. Atos partnered with them in 2014.

And there were many, many sort of pieces from that investigation that we're still learning about actually. But one of the pieces that's relevant to this presentation was the information about hands-free speech. If we're talking about patient goals, which is something we always talk about as speech pathologists, right? All of the people interviewed about hands-free speech in this study, identified hands-free speech as their primary goal. So lemme ask you a question here. What do you think the actual percentage of utilization is of hands-free speech? And if you're brave, you can just type that into the q&a. Nobody else will see it, I will see it. But I'm curious, do you think in the US 20% of TE speakers are able to utilize hands-free speech? or have been able to access hands-free speech?

What about in the UK or Europe? And I'm seeing some interesting numbers pop up. What if I told you this? Okay, a lot of 15 percents. What if it's this, estimates of utilization in the United States 5% of TE speakers are actually utilizing or accessing hands-free speech. Now these numbers are probably a little higher, but I would say 15% is still pretty ambitious. So here's the question. Why aren't more people hands-free? Well, first of all things are complicated, right? We know complex

reconstructions create some difficult peristomal terrain, it can be difficult and frustrating, both for clinicians and for their patients to try to achieve a good seal. It takes a lot of tenacity, some patience and trial and error. These last three bullet points I kinda disagree here. I don't think it's that clinicians don't involve the patients in the decision to pursue hands-free speech, I think many clinicians don't know about hands-free speech, to be quite honest, I didn't learn about it in graduate school. So if a clinician doesn't know about hands-free speech, how on earth would their patient know about hands-free speech? So that's actually the point of the course today. Finally, cost. Well cost is a barrier to just about everything, isn't it? But to be quite straight. I'd say the setup for hands-free speech is still less than my prescription. Bifocals, so. But now let's look at a couple of hands-free speakers. So let's play video, please.

- means to me it's freedom. It's only been six months and I'm very happy about it with this product due to the fact that I could talk without using my hands and be more natural. So it's definitely I can't wait for the picture. to even get better.

- And what I love about about Javier here is he's only six months post laryngectomy and look at him, he's done an amazing job achieving hands-free speech and he sounds terrific. Let's play the next video please.

- [Interviewer] And what is being able to speak hands-free mean to you?

- Oh, it's everything. My grandkids holding my grandkids and being able to talk to them, hold their hand and walk down the street with their hand. Answering normal everyday stuff people don't realize how much you do using your hands working, answering the phone, making dinner, or having a normal conversation. All kinds of, life, life questions.

- [Yumi] But both of those speakers are extraordinary and really point out some of the simpler things. The next slide I think is almost unnecessary. What are the benefits of hands free speech? Well, I think it's obvious. You can better participate in activities of daily living, greater social acceptance and greater contacts. Let's talk about hygiene in this time during this Covid 19 pandemic, hand hygiene is foundational to good health, and certainly for a laryngectomy hand to stoma contact, if that can be minimized. Great. Let's do it. Now, let's talk about the mechanics, the nuts and bolts of hands-free speech. How on earth do these things work?

Well, they all work very similarly. In fact, the same way. A hands-free valve is a two way valve meaning you can breathe in through it and breathe out through it. The bias position is open so it's in an open position for breathing. With a little forceful exhalation. The valve is pressure sensitive it responds to that little forced a little bit more effort during the exhalation, and it closes. And during that closure it literally occludes the stoma. So it's a bias open valve to a valve. It's pressure sensitive, and the movement of the valve is triggered with a little more forceful exhalation.

There really are only two commercially available hands-free valves in the United States and I'm gonna show you both of them. I'm also gonna show you a third device that is no longer commercially available, but it's still in circulation. So the first device I'm showing you here is the Blom-Singer Adjustable Tracheostoma Speaking Valve. And the original design was featured, if you remember back in that study in 1980. And this is a redesign, in this redesign here we have a faceplate. Let me get my arrow going. We have a face plate and back here, you have a little silicone sheet, and that sheet is naturally sort of in a curled position, but with a little extra exhalation that curled up silicone unwraps and includes the stoma. On top of this faceplate, you have an HME, which is, it only fits this little cap here, the HumidiFilter Cap, and the HME and the HumidiFilter Cap are attached over the base plate here. Now, if you remember one of the barriers to using these devices was inadvertent closure. So the way this device

manages that is, it can be turned using this little bar, it can be turned and the opening of that Valve can be adjusted. So hence adjustable tracheostoma speaking valve. It does have an HME for pulmonary rehabilitation that prescription is required. And let's me show you now the next device. This is called the Provox FreeHands Device. This is a device that's a little older. It's no longer in production, but you might still see this, some patients still have this device. It's kind of a remarkable nifty little design and what it uses. It uses some magnets and silicone membranes. Again, it's bias open, with a little forceful exhalation, that membrane snaps closed and includes the stoma. Now this device in order for it to adjust to those variable changes in airflow, there are different membranes that can be inserted into the device. Part of the reason for redesigning the product was actually, it was a little bit difficult to adjust and a little bit difficult to troubleshoot.

So let me show you the redesigned product. This is called Provox FreeHands FlexiVoice. And so what we have here is a device pictured here. Again, there's a little silicone sheet, a membrane that sits back here. With that forceful exhalation that sheet unfurls, covers the stoma, occludes, the stoma, now you're seeing four different valves. So what's the difference? So light, medium, strong, and extra strong. You can tell one apart from the other, because here there's a little raised dot on the clear bar, one dot for light, two dots for medium and so forth. And what's different about these is the thickness of the silicone membrane.

So for example, the light has a very thin membrane medium is a little thicker, and so forth. Now this is the way this device manages those variable changes in airflow. So, again, exertion level, activity, communication style all can influence airflow. A few other features here, unlike the other devices, this device allows an individual to actually manually occlude if they need to, or if they want to speak louder. And that's done by covering this little window. Now, if again, if you remember one of the challenges with hands-free speech was that inadvertent closure of the membrane. So how does this

device manage that? So the feature here, let me show you in the next picture, but there is a locking mechanism. So here you can see the device a little bit more clearly. You can see that there's a little hook at the top here is a hook and that there's a little loop actually on the membrane. And when that device, you turn it a quarter turn that little hook catches on to that little loop, and it locks it open. And this is really a lovely feature because it prevents an inadvertent closure of the device with sudden changes in airflow. What's important to teaching point for your patients is when you're teaching them to use this or to lock it. Very important that they do a little inhalation as they do that little quarter turn, to make sure that the hook catches on to the membrane. This is very helpful during exercise or energetic physical activity. Other features, again, manual occlusion is possible.

So if it's locked, you can still manually occlude and speak if one needs, and again manual occlusion is terrific if you also wanna be a little bit louder. My little arrow here. Other accessories there's a little tool called an arch that sits over the device and this makes it a little easier to turn but it also prevents any material or fabric from being inhaled into the aperture opening here. We call it the nutcracker but it's actually called technically a removal aid and it's a little tool that makes it easier to remove the HME which has to be snapped onto the back of the valve. So let's talk HMEs. There are two types of HMEs.

Lemme make sure I get rid of my little arrow. There are two types of HMEs that can be used with this device. One is called the Provox FreeHands Flow and the other one is called the Provox FreeHands Moist. The difference is the porosity or the density of the foam. And just like with any other HME, you would select an HME based on the humidification needs of your patient and their tolerance to the breathing resistance. This HME is snapped onto the back of FlexiVoice. And here are all three devices pictured next to each other so here we have the adjustable tracheostomal valve. This is the Provox FreeHands, and on the far right we have the Provox Flexivoice so you can

see what each of them looks like in profile and in a frontal view. Let's talk candidacy. So who is a candidate for a hands-free device, this is important. And actually, you'll notice that the candidacy requirements are directly informed by the literature. So first and foremost, of course, you have to have a tracheoseophangeal voice prosthesis and you should be able to use it pretty well. A fluent speaker meaning able to speak about 10 to 15 syllables without interruption, fluid, easy voice. You need to be able to take care of your voice prosthesis independently. And this is important. You need to be able to use a heat moisture exchanger and HME 24/7 for at least 30 days. And the reason for this is both all the speaking valves that are available attached to an HME. So that's a necessary component of the devices.

And remember, the HME is necessary for good pulmonary health. So, if you haven't achieved HME 24/7 HME use for 30 days that might be a worthy first goal. Another candidacy requirement, you need to be able to get a good seal and attach your attachment method, use that attachment method for at least eight hours a day. And finally, intratracheal back pressure should be between 25 and 40 centimeters H2O. Wait a minute, let me back up a little bit.

Remember what intra tracheal back pressure is. So it's that pressure that builds up in the trachea and it can be measured and assessed and I'm gonna show you how that's done in a slide or two. Just as a reminder, intratracheal back pressure is that reflection of the vocal tract resistance. There are two points of resistance. There's the pharyngeal esophageal segment itself and the voice prosthesis. This intratracheal back pressure again, it's neither a good thing nor a bad thing, it simply is. But sometimes when you're troubleshooting or managing a patient with a hands-free speech, you might have to evaluate and assess this pressure and consider ways to modify it on occasion. So what can you do to change the pressure? Well, the pharyngeal esophageal segment. What if? What if your patient has a stricture and that area is extremely narrow? That might make it difficult to use a hands free valve. So this isn't certainly something a speech

pathologist would do. But this would be something where you would consult with your medical team and discuss the possibility of dilation. What about the voice prosthesis? Now remember, it was the initial investigation into hands-free speech that actually engendered a new diameter, a larger diameter voice prosthesis. So, yes, you do wanna consider the type of voice prosthesis your patient is using. Some voice prostheses have one hinge valve, some have two hinge valve. So if you're using a small diameter prosthesis with two hinge valves that might be very, might be really a tall order to achieve hands-free speech with that type of voice prosthesis. To be clear, the voice prosthesis is not the first parameter you would consider modifying, but it is an important consideration.

The first parameter you would consider modifying when you're dressing intratracheal back pressure is this, speaker effort. So, again, let me reiterate. The ideal intratracheal back pressure is between 25 and 40 centimeters H2O that's a measure of pressure. Let's take a look, a little bit more closely about how this is assessed and measured. This is a beautiful tool called the manometer. In this Manometer, this little arrow moves and we'll show you exactly what the pressure level is in centimeters H2O. If the pressure is greater than 40 centimeters, then you can actually even use this manometer as a biofeedback tool to teach your patient to lower their speaking pressure by using something akin to, kind of an easy onset. So let's take a look at this. So let's play video please.

- [Woman] Okay, so go ahead and take your.

- [Yumi] I'm gonna point something out to you. Here's the nanometer. Here's the little pressure dial. And here you can see there is this tubing, which is disposable that attaches from the manometer to the peristomal attachment and it is like an HME. It has the same size hub it will snap into a base plate. And so this gentleman is going to.

- [Woman] Can you just say Aaah.

- Aaah.

- [Woman] Okay, now, go closer.

- Keep, there you go, perfect.

- And the again.

- [Man] Aaah.

- [Yumi] Now pause it there. And the beautiful thing about this particular manometer is it's color coded. So you can see here, this is approximately 10 centimeters H2O, 20 about 30, 40. And if the arrow were to go past here, say to 50, that would be too much, that might be an indication that that's the first parameter you would wanna modify when you're doing this assessment, so, lemme play the rest of it.

- Aaah.

- [Woman] Perfect.

- [Yumi] And just for the point of illustration, I'm just gonna play this again.

- [Woman] Okay, so go ahead and take your finger and just say aah.

- Aaah.

- [Woman] Okay, now go closer.

- Keep, there you go, perfect.

- And then again.

- Aaah.

- [Woman] Perfect.

- [Yumi] So he's doing a beautiful, beautiful job there. And let's go back to our slides. So, assessing intratracheal back pressure pretty easy with this nifty manometer. Lemme just step through what this bullet point at the very bottom is. So say for example, you assess back pressure and say, the assessment shows that somebody is using too much back pressure and then you are able to give, stimulate, the patient is stimulable for reduced pressure. What if you're still struggling? What if that patient is still struggling with hands-free speech? This might be a situation where you would reassess the patient for a different type of attachment.

So we're gonna talk attachment soon, but an info luminal device just as a reminder is something that sits in the lumen, in the opening of the stoma, that would be something like a LaryTube. Really in this situation, usually we would be thinking LaryButton. So if somebody is really having trouble, you might even wanna sort of readdress the type of attachment they're using. So, sort of a summary. Some considerations for successful hands-free speech, the appropriate HME attachment, and again, I'm gonna step through some of those, the appropriate application of that attachment, Peristomal stability. I alluded to this earlier when we were talking about back pressure, and I mentioned that some people have tissue that somewhat lacks in the peristomal area. So again, I'm gonna show you this, what this looks like and what you can do about it. It's actually a relatively easy problem to solve. And then again, the intratracheal back

pressure, informed by the PES resistance, by the voice prosthesis resistance and by speaking pressure. These are all the considerations for successful hands-free speech. Let's talk attachments. So an attachment for hands-free speech device should really be quite durable, a little bit more durable than the type one would use for manual occlusion. It should be able to sustain some anterior stoma movement again, that stomal tissue can move. So there needs to be some stabilizing component to that attachment. And that attachment needs to be fixed with an airtight seal and that airtight seal is critical.

Because without an airtight seal, the air is not directed properly into the voice prosthesis or up through the Fringoesophageal segment. So let's look at some of these different types of attachments here. These pictured here we have both intraluminal attachments and Peristomal attachments. So intraluminal again, are these, this would be the LaryButton, LaryTube that sit in the lumen of the stoma and then our Peristomal attachments. These include things like our base plates.

This is extra base and it has a little silicone ring, a circular attachment with a little silicone ring. This is called StabiliBase and as its name implies, it provides a little extra stability with an extended silicone center that can be placed in a variety of different orientations to meet the needs of your patient. It comes with super adhesive backing here, but it can also be found in this version, which is that beige backing which is called a hydrocolloid material, which is designed for people with sensitive skin. Another terrific peristomal attachment is the InHealth Reusable Valve Housings that are made out of PVC, very solid and quite sturdy. We have a whole presentation on attachments. So if you're interested, I would actually refer you to that presentation because the application and the problem solving can be quite nuanced. For example, some people will use combination attachments. So something like this, this is called the blue ring LaryTube. Oop, my arrow. Which would be snapped into a base plate. And this is a terrific problem solver for certain people. For example, somebody who has tracheal

stoma stenosis and requires a LaryTube, but still wants to speak and needs to get a good seal. So there are all kinds of solutions when we start thinking about attachments. What about teaching your patient? How do you teach your patient how to do this? Well, one of the first things to remember is that this is a bias open valve and it requires a little extra pressure to activate the valving mechanism and close it. So good coordination between breathing and speaking is important. This can actually be one of those situations where you end up exploring low abdominal breathing with your client again in order to sort of activate a really, really good coordination of the breathing and speaking mechanism.

Another consideration, just as you remove an HME for coughing, so one would remove the hands-free valve when one is about to cough. So that's another teaching point. All the valves have what they call a cough release mechanism and it looks a little bit different depending on the design. So for example, with this device with FlexiVoice, the little silicone membrane, if you're not able to remove the device before coughing, and you cough, the silicone membrane will pop through the little window and it's very easy to reset. It's important to teach your patient this because the first time this happens, they may think that they've broken the device.

Assessment, this is just an example of an assessment protocol. And to be quite clear, the assessment protocols would be actually quite specific to your device. So with FlexiVoice, this would be an example. First of all, again, start with your attachment. Number two start with your valve. Because there are four valves, a great place to begin is with the medium valve and the medium valve will give you lots of information if you use it. So if you put a medium valve on your patient, make sure it's in speaking mode. And just watch passive breathing. No speaking, just passive breathing. If you start seeing that valve move slightly with passive breathing, you know what, you know that the membrane is not a good match for that person's airflow. If it's already moving, that membrane is too light, and they need a thicker or stronger membrane. Similarly, it's in

speaking mode. And you ask your patient produce a sustained vowel in Ah, what if they can't do it? You can see the valve flatter, but it's not quite closing. If you're using a medium valve that gives you great information. Again, it tells you that that valve is not a good match for that patient. It tells you, maybe that valve is too strong, maybe they need to go to a lighter or a thinner membrane. So the assessment process, part of it is trying to figure out which is the right membrane or set of membranes? Some people actually switch between several membranes. Also important is to change the exertion level. As we all know, it's very easy to achieve certain goals when you're sitting alone with a patient in a clinic room. But once you get up and start walking and the exertion level changes, airflow changes. So it's important to do a really dynamic assessment with changes in exertion.

Finally, you certainly wanna make sure that patient again understands the cough release mechanism. And finally, I think this might be one of the most important teaching points, you need to teach that patient, how to use the locking mechanism. And that's important because if they get into a situation where that valve inadvertently closes, it's a terrifying experience. And they need to know to inhale and turn it that quarter turn. Education, this is a bit of a reiteration of the prior slide. But yes, you certainly want to make sure you're reviewing how to get a good seal. How to attach the HME to the speaking valve.

You certainly wanna review the locked mode and the speaking mode and how to rotate and inhale coughing mechanism, how to remove the device. How to remove the HME and important and these valves are not intended for use at night so you need to review, make sure you review that and review alternatives for nighttime use and the cleaning. So what do those things look like? So, at night? Yes, don't use FlexiVoice or any speaking valve at night when sleeping, you need an alternative. Cleaning. Each device has different cleaning instructions for this particular device, the cleaning is pretty straightforward. It's a rinse, it's soak in soapy water, and it's a rinse. For disinfection,

it's a soak in an alcohol solution. Now problem solving. Remember this point I made earlier about Peristomal stability and the billowing of the tissue. Let's take a look at that. And I think it's easier just to show you and then try to use too many words. So here we go.

- I'm ready?

- Ready.

- Hi my name is Mike from Silam Northern Carolina I have a problem with the hands-free. That it doesn't stay on very long. So hopefully this new support will help.

- So with Mike, you can see that Mike was really having a problem you could see the billowing of the tissue there. And I don't know if you could hear but there was a reduced volume that was his voice did not sound as strong. So let's play the next video. And in this next video, he's using an accessory called the free-hand support. And I want you to pay attention to two things, the sound of his voice and the movement of the peristomal area.

- [Woman] Okay, and now we've tried the free-hand support.

- It's Mike again, now I' m wearing the free-hand support. There's a big difference you've heard before. So hopefully this will fix my issue.

- So, I don't know if you're able to hear that, but his voice is stronger and you don't see as much movement in that peristomal terrain. I'll just play it one more time for you.

- [Woman] Okay, and now I've tried the freehand support.

- Hi there it's Mike again, now I'm wearing the free-hand support, there's a big difference now, So hopefully, this will fix my issue.

- Great. So let's go back to the slides. So let me show you what the support actually is. It's two pieces. There's a clear transparent plastic base with a metal ring. And you see here pictured again, three different pieces. They're different, each one is different. So for example, in this first one, let me get my arrow. In this one, the ring is actually flat and continuous with the base. In this second one, the ring is actually offset. So it's designed for somebody who has a deeper set stoma, it's offset. And this last one, the ring is even more the offset is even deeper. So the beauty with this device is you have choices and you have choices that can match the needs of your patient. The second piece is the adhesive part.

And this is a little clear again, it's clear adhesive that adheres to the chest. And part one, one of these snaps in here. Okay, so this piece is reusable and these are disposable. And just a better picture of it, you can see here it's quite clear and you can see how the bass sits on top of the adhesive and snaps into it. If you're working with it actually snaps in almost like a little piece of Lego. Okay, I think it's time to start pulling all of this information together and then I can get to some of your questions. So let's consider a problem or a case. So Mr. Jones comes in, he had his laryngectomy a year ago, he'd really liked to go hands free. He's wearing his HME 247, he's really motivated. He's able to get two to three days with his current base plate and his TE speech is fluent and clear. He uses an eight millimeter 20 French voice prosthesis During your assessment with the manometer his intratracheal back pressure during connected speech is measured at 50 centimeters H2O. So what might be your next step in this situation? So in this situation 50 centimeters H2O is a little too high. So a good next step in this particular clinic session might be to assess Mr. Jones stimulability for connected speech at 25 to 40 centimeters H2O. You would not wanna take his device away from him or change his voice prosthesis and his seal is pretty

darn good if he's getting two to three days out of it. Let's consider another case. So here's Mrs. Smith. Now she had her laryngectomy a year ago and she's really eager to go hands free. Again super motivated. Her TE speech is fabulous. But she's not wearing an HME. And she still has problems with excessive mucus production in part because she's not wearing an HME. And she's coughing all the time. So which would be a good next step for her?

Could you encourage her to produce tracheal esophageal speech at the phrase level in eight out of 10 trials? Would you encourage her to utilize an HME 24/7 for 30 days? Or would you work with her on her seal? Well, in this case, pretty clearly, you would really wanna encourage Mrs. Smith to use an HME 24/7 for 30 days. And this will do a couple of things it should help her with her excessive coughing and mucus production. It will also acclimate her to the demands of a hands free device which utilizes an HME, and, that would be your next step with her.

Now finally, I wanna review the candidacy requirements again, because they are so important. And again, just keep in mind that these are really sourced from the literature from some of the things we identified in the literature. So first of all, must be a TE speaker, must be independent with care using an HME 24/7 for 30 days, have success for at least eight hours a day with your attachment and have intratracheal back pressure that's less than 40 centimeters H2O. And here's an encouraging thought. These are difficult times I know Covid 19 has created tremendous amounts of uncertainty for all of us. But hopefully you will have learned something during this presentation. And hopefully you will be inspired to help your patients get hands-free. And at this point, I would be just delighted to take some questions and I can see some here already. So.

- [Amy] Hi Yumi, I can help by read these questions for you.

- [Yumi] Terrific.

- [Amy] And we have a question from Caitlin asking, could you explain the concept of bias again?

- [Yumi] Okay. So, with a valve, remember, a valve is able to open and close. A valve, if it's in the open position all the time, that's its default, that is a bias open valve. So bias default would be a good synonym for bias. So it's in a defaulted open position, meaning when you first put it on, it's open, so your patient can breathe easily in and out. It's closed with a little forceful direction of air. Does that help?

- [Amy] Caitlin you can let us know if you still have questions. "That helped me a lot, thank you Yumi." Yes, that helped.

- [Yumi] Yay, wonderful Caitlin.

- [Amy] Diane is asking I think, for someone who does not have a lot of experience in this area, perhaps with laryngectomys or working with these particular types of devices. Do you have any recommendations for how they might hook up and get some mentoring or more experience with like some mentoring from an experienced clinician? I believe that's what she's asking about.

- Absolutely.

- Or training.

- [Yumi] Yeah, so actually, you would contact the ATOS clinical education team, and we would be happy to work with you one on one, remotely or hopefully when at the end of this Covid 19 pandemic. We'd love to work with you one on one in your clinic

environment if possible. But we do that frequently. We love doing that, it's so enjoyable and it's so rewarding because it is one of those situations where it's great to see a presentation, but it is really nice, you're right Diane, to have that mentoring. So if you contact ATOS, then you will be able to reach the clinical education team, and we would be happy to help you.

- [Amy] I wanted to ask, too, I was looking at the handout to see if there is contact information for ATOS or for you or what's the best contact?

- Oh sure yes.

- To start off with.

- [Yumi] Of course, because I am in my presenting highly accelerated adrenalized mode I am blowing my mind in terms of my account, I'll give you my phone number, which is 206-305-9471 and if you contact me directly, I'm happy to help you or you can also contact me by email @yumi.sumida@atoastmedical.com And we'd be delighted to reach out and help you.

- [Amy] Wonderful, thanks so much for providing that, could you double check I typed it in--

- [Yumi] 206-305-9471 and, again, I apologize. You know this is very much like that situation when somebody asks you your personal phone number and you just.

- [Amy] I know I did same thing that's all right, we've got that up there that works great. Thank you so much. All right, so we have a question from Sandra here who says she has a patient right now with pharyngeal cancer, who is trying to use an HME tight valve regularly, but the patient is having problems with increased coughing when the HME is

in place. And after 10 minutes or so, the coughing really increases significantly, and she's wondering if you have any suggestions for what to try next?

- [Yumi] Yeah, that's such a good question. If somebody was not introduced to an HME really early in their rehabilitation process, that acclamation becomes harder. It's such an interesting thing because if somebody is introduced to it right away, it's almost unnoticeable to them. So what happens is if they haven't been wearing an HME for a while, the sort of dry, cold air creates a problem in the tracheal and pulmonary environments. So you have this excessive mucus buildup and sort of chronic coughing. When somebody first starts using an HME, they can't it's a perceptual thing. They could almost feel like there's more mucus, but there's actually not, it's almost what I would describe as something like almost like a detox process. And the data do show that it takes about for some people two weeks for some people a little longer to get through that difficult period. So it's important to encourage your patient to stick with it. You also wanna consider what kind of HME they're wearing. So that would be another consideration. If it's Just the coughing, I would also consider encouraging your patient to start their day off with a little bit of a routine where they do some stoma care. And for some people that might include doing sort of what we call a lavash, where they trigger a really strong cough to clear some of the stuff out. And then put the HME on and go from there. But it can take some encouragement for someone to get through that period.

- [Amy] Very good. Thank you so much. And then we're almost done here. But there's a comment from someone saying, I just wanted to say that your calm voice and enthusiasm about the topic is calming in this anxious and stressful time. Thank you so much, and I would have to echo what she's saying. There Yumi, this was fantastic. And you were very engaging and exciting to listen to, it's obvious that you have a passion for this topic.

- [Yumi] Oh, you are so kind. I thank you for the comment. And I do know that I'm just really delighted to have this opportunity. I'm so glad you all tuned in. And I wish you all so well. I know this is a difficult time to work in health care. So take care of yourselves and yeah, and be kind to yourselves and be kind to each other. Thank you so much.

- I have to agree. Yes, thank you so much for our audience out there. big audience today, it's great to see you here. I hope that you'll attend some other webinars with us soon. And Yumi thanks again so much. This was great information and, engagingly presented so we were very thrilled to have you here today. Thanks a bunch. All of you out there. Stay well, be healthy, take care of yourselves, physically, mentally, everything else. And I hope we can all just hang in there and see this situation through.

- Amen.

- Thanks everybody. I'm gonna wrap up the classroom. Have a good day, we'll see you next time.