Understanding Skin Physiology and Management After Total Laryngectomy

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- [Amy] Once again, welcome to our event today, Understanding Skin Physiology and Management after Total Laryngectomy,. And this is presented in cooperation with or jointly with Atos Medical. Our presenter today is Julie Bishop-Leone. She is the Director of Clinical Education at Atos and her career as an SLP spans over 20 years first at the University of Michigan and then as clinical manager of speech pathology and audiology at the University of Texas MD Anderson Cancer Center in Houston. She has specialized in a laryngeal voice restoration and swallowing and participated in numerous clinical trials and coauthored several peer reviewed papers focused on the head and neck oncology patient. In addition to her extensive clinical experience with tracheoesophageal voice restoration, she has directed and been an invited faculty member at national seminars and training programs in the area of laryngectomy rehab. So, Julie, welcome. We're always excited to have you here and I will turn over the floor to you.

- [Julie] Okay, great. Thanks for having me. So just as a disclosure, I do work for Atos Medical as the clinical director, and they're having me do this today. So just to kinda briefly go over kind of what we're gonna talk about today 'cause of the fact that a lot of us have never really thought about skin care and how that relates to some of our patients. I'm gonna talk about the skin, the various functions of the skin, the various reactions that can happen as a result of it and the breakdowns that occur in terms of skin reactions, and then some different practical strategies to help kinda reduce the frequency of those occurrences and describe the impact on skin issues and how they impact the compliance of actually wearing heat moisture exchanger. So without further ado, we'll kinda get started. And I think really, first and foremost, it's really important to kinda talk about the neck breather anatomy and physiology. I know many of you already worked with laryngectomies on a daily basis, but some may not, so let's talk a little bit about that just as a review. When you think about after a total laryngectomy, what happens is is that there is conditioning of the air that we all currently in a normal patient where all of us are breathing in the air let's say, it's 72 degrees, the relative

humidity is 45%, and it's ambient/dirty air that we're breathing in, but because of the fact it's cycling through our upper airway including our nose and our pharynx, by the time it actually hits our bronchioles, it has a relative humidity of 99% and it's filtered pristine air at about body temperature. After a total laryngectomy, after removal of the larynx, the patient no longer breathes through their mouth and nose. So they're really not conditioning that air that's coming in. So that air temperature at 72 degrees with a relative humidity of 45% and that ambient/dirty air, they're still breathing that in once it hits their bronchioles. So there's lots of consequences that happen as a result of loss of heat, loss of moisture, and loss of filtration.

We have more mucus that develops, people are further risked for mucus plugging, significant coughing throughout the day and all of these different things affect their quality of life as a whole. So really, what's the answer? There's not a purple magic pill out there. Really, the answer of helping to restore that tracheal climate is really by the use of a heat moisture exchanger or what I'm gonna call an HME for the rest of the talk here today. And so what that does is the foam core that's treated with calcium chloride salts or some are treated with lithium chloride salts, so what happens is the patient exhales, that natural heat moisture that we all have in our lungs, the stuff losing that. That heat and moisture exchanger grabs a hold of that so as you breathe back in, it heats it and moisturizes it.

This particular HME, we can't really say is a true filter, but it does act as a logical barrier to any gross airborne material and it's certainly much more hygienic in terms of we have something covering the stoma, helps the patient kind of adapt to having a stoma. And here in Texas, we have these Texas-sized bugs. You certainly don't want them to fly into the stoma as well. So really what's important is that someone wear that HME 24/7. Just like someone who is not a neck breather, you always have your nose there that's helping to condition that air to have the optimal tracheal climate. So with 24/7 compliance wearing the HME, what researchers found is that it significantly reduces

hospital complications like mucus plugging, reduces the need for chest PT. immediately post-operatively, reduces infections like tracheobronchitis or pneumonia and it certainly is much more cost-effective care when you look at it in terms of using an external humidifier. And Brooke actually even found that the use of a need for external humidifiers and vaporizers is reduced as well, and so there's lower health care costs overall. And when you kinda think about this, I know we're talking about laryngectomy, but a lot of this can also apply to your trach population because they are also neck breathers. Many of them are maybe a partial neck breather, some of them may be a total neck breathers depending on the reason for them to have the trach at that point, but a lot of these same scenarios could apply to them as well. So other things that can happen is we all have these little cilia or hair-like projections in our lungs.

They're responsible for pushing mucus up and out and trapping some of those large debris that we are inhaling. And one of the things that research shows is that actually with utilizing an HME 24/7, you have significantly more ciliated cells. So what does that mean? You certainly have a much more efficient system to get rid of all of that mucus as well as the larger particles in the airway. It certainly allows the patient to better handle secretions, there's not as much stomal crusting, they're not coughing as frequently or as forcefully. And with TE speakers, if they're using a tracheoesophageal voice prosthesis, they certainly have much more fluent speech.

One thing that a couple of different studies also found is that people have better sleep because they're not coughing. If you kinda think about yourself in an upper respiratory infection perhaps that you've had, you feel like you have much more mucus and you do because you have these little goblet cells that actually produce more mucus as a result to some sort of external stimuli like dust or pollen or infection. And so what happens is is that you're consistently coughing constantly and this is kinda the day in the life of what happens with a neck breather, which certainly can affect your sleep

pretty dramatically. So one thing we know is by not using a heat moisture exchanger day and night, it could certainly negatively impact one's pulmonary health overall. So we certainly wanna maximize that and I'm gonna share with you some data as we kinda go along that the Red Associates actually found. But this was a study actually where there were 80 patients and they had some that wore an HME, some that did not wear an HME and they kinda recorded the cough frequency as well as the cough expectoration looking sort of at compliance and found that what would happen is is there was a huge difference between those people that were compliant 24/7 versus those that had variable compliance.

So if you kinda look at this graph here, there were some that wore no HME at all and that's that first bar on the left and then some that wore HME during the day, and some that wore HME both day and night. So they were wearing it 24/7. So if you look to see certainly if you're practicing utilizing that HME 24/7, there was a significant reduction in the frequency of coughing as well as the frequency of forcefully expectorating mucus with those that actually utilize that HME 24/7. So pretty significant changes even if you compare those that are only wearing it during the day to those that are wearing it both day and night. So is there a kinda a usage pattern?

Is there a trend out there? What the Red Associates is is they're an anthropologic group that actually spent some time with laryngectomies day in and day out. What they found in terms of compliance and whether patients were wearing things 24/7 is they found really that patients didn't have this tangible benefit or didn't perceive that tangible benefit of wearing the HME at night, and up to 80% of the users don't wear the HME at night even despite the fact that they were concerned about covering their stoma, and the humidity level, and bugs entering their stoma and things like that, so they kinda found alternative things to wear as a result of that at night like scarves or they used a humidifier or they just didn't use anything at all. So when you looked at the survey, this was a survey that was done globally with 729 users, 122 of those actually

were in the US itself. What they found is 50% of patients do take that break from wearing the HME and the adhesive. And when they do take that break, 87% of them take that break at night. How often do they take a break? 73% take a break every week, 29% as often as every day. I would say if you looked more so at those US users, they pretty much fell mostly in that category where they would not necessarily take a break every day, but every two to three days. What we know about not wearing an HME is certainly there are pulmonary consequences as a result. We know within the first five minutes of not wearing the HME, those cilia start slowing down so they're not pushing that mucus up and out of the airway and therefore, patients are coughing much more and the goblet cells are starting to produce more mucus as a result of having lack of heat moisture.

So, and the reason why they would take these breaks is typically because of lack of knowledge of why they should be wearing it 24/7, discomfort, so they felt like they wanna, it was more comfortable removing everything, and also skin irritation because they wanted to give their skin a break. So really what the Red Associates data really kind of describes is sort of this troubling relationship. There's kinda this lack of knowledge about an HME, there's this perception of discomfort when wearing an HME at night, and also the fact that you would take these breaks because of the fact that they had skin irritation.

So as a result, patients are not using their HME as much, they're getting poorer sleep, and certainly, what we know is it can affect their tracheal climate. So let's take a look at one of those problems and that is skin physiology. And you don't realize it, but your skin is your largest organ. It actually protects you from any microbes entering it. It helps regulate your body temperature, permits you to have sensations of touch, heat, and cold. And everybody has different skin types. Some have more melanin in their skin than others, some have thinner skin. We certainly know that aging affects that as well and we'll talk about that. But there's three different layers of the skin. The first is the

epidermis. That's that outermost layer and that's really to provide a protective waterproof barrier. That's actually the area that actually makes new cells. The dermis is below that layer and that really is comprised more of the collagen or elastin in the skin, and that's really where it contains most of your body's water supply at that point. There's also oil and sweat glands that help moisturize the skin at that point. If there's any toxins in the skin, it expels through the external layer out to the epidermis, and also provides blood supply to the skin and helps regulate body temperature. And then the innermost layer is the last layer and that's that insulation or that padding. That's where you have the subcutaneous fat and that's that last layer and that last defense mechanism between your inner organs and the outside of the skin. So again, when we talk about that epidermis, that's the one, there are little corneocytes, which are cells that are kinda the outermost layer of the skin. And it's sort of this cycle where it sloughs off some of these corneocytes and actually produces more of those corneocytes.

So you can kinda see some of those skin layers lost. And really, that cell regeneration center assist so that we don't have a whole lot of water loss and again, is that outermost layer to any fungus and bacteria. So, and there's a lot of interactions between the dermis and the epidermis, so that outer layer and that layer below that, because they're constantly in contact with one another to regulate body functions like touch and regulate temperature. They have this constant turnover. And any disruption in that communication between those two layers can cause a lot of disruptions in the skin such as blisters, and bruises, and rashes, there may be dermatitis, certainly a sunburn could be one of that, acne, cellulitis and so forth. And really it's kind of this diverse natural defense mechanism of the skin because of the fact we have this buffer between that outermost layer of our bodies and protecting our organs. And you don't really even recognize really how important skin is till you have skin breakdown. One story of my son who was 15 at the time was at strength and conditioning camp for football. And he came home one day and is, we went out to dinner, he goes to take a

big bite of his hamburger and then we noticed he has this really weird discoloration of his hand. And I also then see a red line that's traipsing up his arm. So I asked him about it and he's like, "Ah, I don't know." And sure enough, as we proceeded to have dinner, that red line went from his wrist to towards his elbow and I'm like, "All right, we're going to the doctor." Sure enough what it turned out to be is he had had a blister by not wearing weight gloves and got MRSA into that that area of the blister because then again, we're infiltrating into those innermost layers of the skin and then it started to go systemically and that's why you started to see that sort of red line form. By the time we hit to the emergency room, it was actually about three inches from his heart. So would have been systemic.

And we're talking about somebody who's a healthy individual. And when you think about some of these patients that we see, they're immunocompromised maybe because of their treatments themselves. They're certainly an older generation typically in their 50's or 60's or older, so we already are seeing some skin changes because of that. So you really have to be very careful about that breakdown because when that breakdown happens, that's when it can affect those lower layers of the skin and certainly can affect the organs as well. So there's certainly a lot of folks that are at severe risk for skin reactions. When you sort of look at some of these descriptions, they typically are are head and neck patient, right?

So certainly if somebody is getting radiation therapy or they're getting even IMRT, which is a more intense radiation to a localized area or getting a boost chemo, that certainly can affect that as well. Some of the immunotherapies that are out there now or targeted therapies do have some ultimate skin reactions. I remember I could always tell someone who had something like Erbitux because they almost look like they had an adult acne that would occur after that. If you look at some of the other just general patient factors, higher BMI, smokers, certainly as you age you're at more significant risk. As we see our parents and our grandparents where their skin is very thin and even

a very small nick of their skin could certainly cause tearing, and that could affect their overall health as well. Genes. So some of us are certainly more susceptible to skin reactions than others. If you think about those of us that have very pale skin versus those of us that have darker skin, those that have paler skin are certainly more susceptible to getting sun burns and things like that. So there's not as much of a protective mechanism. Alcohol consumption can be part of it certainly. And all of these different skin reactions can certainly affect sleep. I mean, if you think about the worst sunburn perhaps that you've ever had, that's the first thing that affects is you don't feel comfortable. You don't even want the sheets to touch your skin sometimes when you're trying to sleep. So also the effects of aging on the skin like I talked about our parents our grandparents, that skin becomes thinner and more fragile because there is not as good of a blood supply that's actually going to that outermost layer of the skin. You don't have as much collagen and elasticity. I certainly can attest to that now that I just turned 50. And certainly have wrinkles and you could have more sagging of the skin and things like that.

Again, the sweat glands don't produce as much sebum or oil so the skin becomes drier as you age. So that's what's really kind of important. So really maintaining and supporting that aging skin is even more critical. So if we take just a normal person that hasn't undergone some of the head and neck treatments that these patients have had and then add just the normal aging process to that, we're already trying to have to really pay close attention to those aging patients. So let's talk a little bit about skin breakdown and what that looks like. They're kinda multi-faceted. Again, it could be in relation to all of these different things. There could just be a natural imbalance in the moisture. Certainly, the skin could be too moist or too dry, so you have to have sort of that delicate balance. There could be a change in the pH of the skin. That could be if you think about children in diapers, even where they get different skin reactions because of the fact that they have feces or urine sitting in the diaper or there's a change in the pH of those two bodily fluids, that could have a change in it. Pressure

ulcerations can also affect it as well. Also skin stripping. If anybody has had sort of a wound of some sort and you've had adhesive that's applied to that wound, removing and replacing that over and over again can certainly affect that, and we'll talk about that a little bit more in depth. And certainly, the various different treatments obviously can affect that too. Skin reactions that happen during radiation therapy. Certainly, you can get weeping of the skin. You can see that the skin cells are not reproducing, so they're stripping some of that skin, but you're not seeing that constant layer of cells reproducing at that point.

And that's where you get kind of skin breakdown, you get sort of the basal layer of the epidermis and sometimes the dermis exposed. And again, that could put people at higher risks. I've seen a lot of folks have surgery than they have immediate post-op radiation therapy and in those folds of the surgery and so forth, sometimes if that starts to get exposed, that's where if there's any fissures or any folds in the skin or near the scar, where the scar bands are, that's actually a lot of times where the bacteria and fungus hide out and then that can get into the deeper layers of the skin and then go systemically. So that's what we have to really be careful about as well. Other reactions.

Again, I already mentioned things like some of the immunotherapies that are out there. And what those immunotherapies many times are targeting is they're actually targeting that epidermis growth factor so they're not reproducing those cells and so people become sensitive to sunlight, they can have some of these acne-like rashes on their skin or their upper body, some people get some inflammation even around the fingernails and many times their skin becomes really dry and itchy. So typically, when you think about the course of radiation therapy and how the skin reacts to the radiation therapy, interesting enough is that the number one cause for treatment disruption with radiation therapy is the fact that they've had skin intolerance. So what happens is is it's somewhat improved with some of the fractionated radiation therapies. But what typically happens about week two is the skin becomes red and you see some

erythema occur. Between week four and week five, what you typically see is that we're already impairing the skin reproduction. So then what happens is you're gonna have that peeling of the epidermis, sometimes you can have sort of the dry desquamed area. And then around week six, the skin layers continue to slough off, but again, we're not replacing those skin layers. So we're sloughing off all the skin layers and then we're putting people at bigger risk for exposure at that point. And so that regeneration center is not working. And if you kinda think about men who's gone through radiation therapy, many of them will tell you even that their beard line, they don't have to shave because even that hair is not regenerating at the same time. So kind of the process of breakdown with laryngectomy is it could be because of mechanical stripping, could be because of maceration.

So there's excessive exposure to liquid sitting on that area, especially when you think about many of these folks are coughing and bringing up the mucus. And if that sitting on the skin, that alone can cause breakdown of it because mucus has sort of these enzymes that actually can cause that break down. And so there can be contact dermatitis, and we're gonna talk a lot about that too as we go in-depth. So this actually was a study interesting enough that really looked at repetitive use of adhesives. Because of the fact that we're using adhesives, a lot of times for these folks that are using that sort of as their attachment to where the heat moisture exchanger.

So they're using that attachment every day all day and over time that can certainly cause a change in their skin. So this actually was a study that was done in Japan and what they did is they looked at people utilizing two different types of adhesive tape that they wore for four hours during the day and they looked at it during the summer and during the winter. And what they found was is that there's dermal peeling that occurs with each application of the adhesive. And so those corneocytes or those cells are being stripped and the number of cells that are being stripped is certainly the higher number of corneocyte stripped, the higher degree of skin irritation that can occur. And

so what also occurs at the same time of that stripping is there's water loss in the skin. Again, that could cause that breakdown, so it's kind of this triple-edged sword here. And interesting enough is they found that as you continually wear it, so today I might peel off two layers of the skin, tomorrow, I may peel off three and it progressively goes up and up and up as the days proceed. So what they also found too is that dermal peeling force was worse in the winter versus the summer. And I guess what I can explain there is maybe because it's drier in the winter than it is in the summer, but yet there were deeper skin furrows that occurred in the summer, which any time there's a furrow or a fissure in the skin, that is actually where it's a perfect storm for bacteria and fungus to enter into the lower layers of the skin and then into the organs. So there's two different types of dermatitis. There's allergic contact dermatitis and irritant contact dermatitis. Allergic contact dermatitis is caused by some sort of allergen. So if you've heard of people having latex allergies or nickel allergies, those things can happen there.

And irritant contact dermatitis is typically develops from some sort of substance irritation of the skin. But both of these types of dermatitis really can be because of baseplates or tape or mucus or drainage from sutures or wounds, soap, hair dyes, all different kinds of allergens that can occur and you could almost see, especially with tapes and baseplates, you can almost see a perfect outline of what that baseplates looked like around the stoma in the laryngectomy population. So you can see here this gentleman, see if I can get my pointer to work here. This gentleman here has, you can see almost a perfect circle all around his stoma where he was wearing a round adhesive tape baseplate at that point, and that's causing that. And so that's kind of an allergic reaction. Sometimes that can occur. Sometimes you'll see sort of itchy skin. You can see a rash. Some people have burning or stinging. Or you'll see almost like welts around it. You can see this gentleman here at the bottom where it's kind of spotty or it's not consistent redness all the way around where you see sort of a change in that. Sometimes you can have oozing blisters that leave kind of crusting or scales on it as

well, and the skin can sort of start flaking. Then there's irritant contact dermatitis. Again, that's developed from some sort of substance irritating the skin. Again, that could be baseplates or tapes, mucus. Any number of those. And so I would really kind of, I wouldn't necessarily recommend that you try to differentiate one versus another, but certainly, get them to someone that could help them with that breakdown whether that'd be an ostomy nurse and kinda work along with them as to what's the best formula. And we're gonna talk about some different things that we have kind of in our bags. Some signs and symptoms of the irritant contact dermatitis is typically where you have sort of that chapped skin where it's really dry, you might have redness, you might have some edema.

Again, you can have some fluid-filled blisters and things like that that can erupt and cause some scabbing and so forth along it as well. So we don't really notice how much skin conditions can impact people overall in their quality of life, but we do know certainly, it's one of the reasons for chronic pain, people have loss of work as a result of some of the skin conditions, people withdraw from normal activities. Certainly, that can decrease their quality of life and certainly decrease the quality of their sleep overall. I'm getting fancy there. So how do you prevent and treat some of these skin conditions? I think prevention is really the key. And this is so important that actually, they came up with the best practices consensus because of the fact that there are so many skin injuries that do relate to adhesive-type things.

So the panel basically stated a couple statements to kinda tease out of there is care of the skin including prevention of adhesive-related injury should be the standard of care for all healthcare providers. And consider application of a skin barrier prior to applying adhesive was also in that consensus. And then consider use of medical adhesive removers to minimize discomfort and skin damage associated with removal of skin products, and use proper application or removal techniques for adhesive-containing products. So all these things that we kinda think about with laryngectomies daily is

many times we're so focused on let's place it that we don't focus necessarily on what is that placement? What is the use of the products during the placement? How's that gonna impact the skin? And also, how is removing the product gonna impact the integrity of the skin? And I almost think we focus so much on getting a good seal and placing it that we don't really focus so much on removing it. And traveling around the country, I see all of these patients just take that adhesive baseplate and rip. And I just taught a course this weekend in Fort Worth and every patient that came into the room during the course, they would wanted to rip it off. And, of course, those are the folks that you see sort of that dermatitis that's occurring in the peristomal skin. So important things to keep in mind, it's so important that this is sort of part of a national consensus. So really skincare basics are to cleanse it, to moisturize it, protect it, and remove appropriately. And we're gonna kinda delve into each part, all right? So let's talk about one at a time. So the different skin cleansers out there, depending on the type of soap, it can cause a skin stripping. It could change the natural pH of the skin.

And remember, when I said that when the pH changes, that's when that imbalance could cause that skin to break down. So anything that's just, Ivory Soap is one of the best ones or Dial or things like that that don't have some of these antimicrobial, antifungal-resistant type soaps can cause a change in that pH and that could cause dryness, it could cause the change in the pH, and that could cause the break down. You wanna avoid anything that has an abrasive soap in it. So if it has sort of a scrub in it, you wanna avoid those kinds of things. So something that's gentle to the skin that doesn't cause any of that abrasive. And certainly, the more that you clean it, that can also do more harm than good and that's pretty common. When people have a breakdown in their skin, the first thing that we wanna do is let's clean it. Let's see if we need to clean it more. The problem is is doing more and more of that, you're losing the natural oils of the skin. You're changing the pH overall and that alone certainly can affect it. Then there's different moisturizers out there. The purpose of the moisturizers is to trap the natural moisture of the skin. Really, what they do is recommend applying

it directly after bathing. So when the skin is damp, not necessarily wet, you're gonna help trap some of that moisture into the skin and reserve the skin's hydration overall. And it's really critical in really hot, dry climates, which I wouldn't know anything about dry climates. I live in Houston, Texas so when it drops below about 80% relative humidity, we think that's a dry good hair day. But in those really hot, dry climates like Phoenix, Arizona, that's when it's really even more critical to utilize those moisturizers to help sort of preserve our skin. And you think about all of us every day, we're applying moisturizers to our skin, we're utilizing, hopefully, everyone is utilizing some sort of sunscreen with SPF when you're out in the sun. All these different things. So we really need to work on trying to maintain that overall, particularly for these patients. Try to avoid moisturizers that have any perfume in them or lanolin or contain different allergens or preservatives. That again could affect the pH of the skin. And then there's liquid skin barriers. So what these do is put a barrier between the skin and the adhesive.

So they kinda provide a protection or a layer between those two things so that you're sort of keeping that irritation away from the skin itself. So there are some barriers out there that have alcohol in it. One thing that we know about alcohol is that alcohol is a drying agent to the skin. Certainly, we're trying to keep that skin moist enough so that they don't have the breakdown. So try to avoid anything with alcohol in it. And the other thing with alcohol, especially when you're talking about someone that is a neck breather, when that alcohol is up towards the stoma, what it can do is cause folks to cough because that's an irritant in the airway itself. 'Cause remember, they don't have a filter there any longer so that can certainly affect the coughing. So a lot of people that will try to use just regular medical grade skin barriers, it has that alcohol component in it, which is really noxious to the stoma itself. So the Provox Skin Barrier, it actually is the only skin barrier out there that actually is designed for someone who is a neck breather and doesn't have alcohol in it. And there's quite a bit of actually liquid that's in it. So when you open it up in the package, just open it up, just unfold it once, apply it,

then unfold it again and apply again and that will help provide that barrier between the skin and the adhesive. Then there are some solid skin barriers. And this picture here of them putting on the back of their heel. Every year at ASHA, I have those in my purse just in case those new pair of heels cause that irritation. But what that is is many of them are like a hydrogel or a hydrocolloid type adhesive. So what that does is that kind of promotes that physical protection of the skin and provides it with sort of a moist environment. So if you've ever had a blister and you put one of these on, what you'll see is is there's almost that blister will form like a little pocket or a little pillow from the moisture, kinda gathers that moisture. So it helps protect it physically from any irritation.

So I think what's important too is to make sure that you're using an adhesive remover when you're removing that adhesive. It is no joke pulling that adhesive off the skin can really cause a significant amount of damage, especially when we look back at that Japanese study that there is consistent stripping of that skin. And progressive stripping, the more that you do it, especially in the same area, the worse it becomes day in and day out. So try to use an adhesive remover around the actual baseplate itself. So this is the Provox Adhesive Remover. Again, it doesn't have alcohol in it, but it will also prevent any fissures from occurring in the skin and those fissures are where those secondary infections kinda hide out and form. So you would just take that adhesive remover.

Again, its folded twice, so unfold it once, apply it on top of the baseplate, apply it at the edges of the baseplate, and then kinda lift up that little tab and gently move back and forth with the adhesive baseplate to release it. The only baseplates that won't penetrate all the way through is the hydrocolloid and the hydrogel adhesive. So the Luna and the OptiDerm. So this is a care tip that we have. If you look online on our website, on the Professional tab, you can find the step-by-step instructions about removing that adhesive as well like I just described. So other treatments for dermatitis

is to keep that skin clean with mild soap and water. Some physicians will recommend corticosteroids or anti-itch creams. Try to avoid itching or scratching of that skin because that actually can make it worse. Some people utilize antihistamines if it's some sort of allergen that's causing some of that infection. And really, only use an antibiotic if there's a secondary infection there present. You don't want to expose too many people with too many antibiotics because then what could happen is they have antimicrobial resistant bugs. Certainly, if it's contact dermatitis, eliminate that irritant, expose the skin to natural or artificial light. Some people put cool compresses onto the skin depending on what kinda breakdown it is. Certainly, moisturizing that skin or using some hydrogels or hydrocolloids also can help. So what is a hydrocolloid? So, many of you may have utilized different hydrocolloids that are out there for breakdowns of bed wounds and things like that. Basically, what it is it's designed mostly for moist wounds, it's there to help retain the moisture and it almost is like forming an artificial blister. What you don't wanna do is if there's an active infection and you put a hydrocolloid-type adhesive on an active infection, it's trapping the infection, so that microbe can actually proliferate.

So you wanna be really careful with a wound that actually has an active infection and using a hydrocolloid. It doesn't typically require frequent changing, so you're gonna, when you go to put that on you're not gonna remove it every day, you typically wait for that to actually loosen and that's when you replace it. So one of the hydrocolloid adhesives that we have is the Provox Optiderm that comes in a round and oval, a plus, as well as StabiliBase Optiderm and that is for that sensitive skin. And it's not super sticky, but as it actually heats up to the body temperature is when it actually creates that adhesive bond. So that is the Provox Optiderm and you see that kind of on the right. Some people utilize it immediately post-operatively. You can actually put it right on the suture lines. I would say in Europe that's their primary, that's their primary attachment immediately post-operatively. Here in the states we love ointment, so ointment and adhesive don't go very well together, so I would say most people in the

states immediately post-operatively are utilizing the LaryTube or may use a combination of a LaryTube with a ring with the Optiderm adhesive. And then there's a hydrogel. And there's all different kinds of hydrogels that are out there. They have a high glycerin content. And really what it's doing is that high water content is delivering a great deal of moisture to the skin, but if there's an excessive amount of moisture it'll actually wick it away as well. So the key with the hydrogel-type adhesive is that there's no prep involved. You want it actually to sit on the naked skin. So you're gonna prep the skin with just mild soap and water, avoid using even alcohol as sometimes it breaks down the matrix of that hydrogel.

So you're just gonna clean with mild soap and water, let the skin dry, and then you're gonna place it directly on to the skin. Some of us may use different types of hydrogels for crow's feet things like that on our skin. There's a lot of 'em out there. There's also some hydrogels that are for scar therapies. So I utilized one after I had an incision made on my finger and it's just a gel that physically goes on. So they come in different types of applications. So they're really good for dry or dehydrated wounds, if you have full-thickness skin lesions like a full-thickness skin graft, minor burns, abrasions or scrapes, radiation skin damage and things like that.

And the one that we have is called the Luna and that's the one that you see in the upper right-hand corner there. And so you wanna make sure that you're just putting that directly on the skin with no prep involved. So that's something to really emphasize to patients as they're utilizing that. So kinda the difference between the hydrocolloid and a hydrogel in summary is the hydrocolloid is for more moist wounds, whereas the hydrogel is not really appropriate for those weeping wounds. The hydrocolloid you can actually put in place and it could stay for up to seven days depending on the patient, whereas the hydrogel you would change it daily. In fact, most hydrogels last 12 to 15 hours and the hydrocolloids more of an occlusive dressing that's impermeable to any bacteria. So if there's bacteria present, you don't wanna use that hydrocolloid on it and

really kinda forms this gel along with that water layer that's on the skin itself. Whereas the hydrogel is moisturizing but also can help wick away some of that moisture as well, all right? So the Red Associates kind of describes this troubling relationship like we talked about with skin and people would remove that baseplate at night to allow the skin sorta to breathe and give it a rest. So we certainly wanna talk about how, and that certainly can affect sleep overall. So really that's when we came out with Luna, which is a hydrogel, it's a night-time solution that really is much more comfortable that has a soothing or cooling effect to the skin. Actually the heat and moisture exchanger on that is exclusive only to the Luna. So you can't use that HME with other types of attachments. It's very soft, it's made of silicone and so it actually has superior long humidification. So that has that most moisture retention out of any of the HMEs that are out there. So this is something that you would wear your day-time adhesive, during the day, and then this Luna is your night-time adhesive that's much more comfortable and then you can allow the skin to be soothed and cooled while you're still getting the benefits of wearing that HME.

Because what we know of not wearing that HME 24 hours, like we saw in the BN study earlier, is that it certainly can affect the amount that they're coughing and how forcefully they're expectorating. So here's some data that's looking at it in terms of the Luna HME versus the extra flow and extra moist. You can see it's just a slight more resistant than the extra moist HME in terms of breathing resistance but significantly larger moisture retention or what they call in here moisture loss: you're not getting as much loss of that moisture. So every patient should be able to wear that Luna except for someone that does require to wear a LaryTube or a LaryButton at night. Because of the fact, as we all know, there are some laryngectomies despite our best effort that stoma still wants to stenose. That might be something that's short-term, that might be something that's long-term. If somebody certainly has reconstruction, that's certainly can affect it even more so because of the redundancy around the stoma itself of the tissue so the LaryButton or LaryTube helps so that that doesn't collapse in and

obstructing their airway. So for patients that have to utilize a LaryButton or a LaryTube that Luna is not something that I would recommend utilizing unless the physician or you as the speech pathologist have deemed that safe for them, all right? So this was a study that was done on the Luna and what they did is a randomized crossover trial with 53 patients. They participated in looking at utilizing their Luna versus usual care over two 28-day intervals. And really what we want to look at was HME compliance in this study. And so what they found was is that with those folks that utilized Luna during those intervals what they found was that they were wearing HMEs more hours per day. And what do we know from that BN study? The more hours that you wear it, the better the outcome in terms of coughing and forcefully expectorating. And one of the things that participants also noted was that there were, frequently, was that there was an improvement in their skin overnight.

So we're sorta solving two problems, right? We're helping with their HME compliance all while helping with their skin. I went fast, didn't I? So any questions that anyone has about skin irritation? One of the things that I think is super important is really kind of emphasizing this with your patients as you are talking with them about the various different regimens of removal and replacement and making sure that you're not only talking about applying it but how they're removing it. And if they start out wearing a different type of baseplate, you're going to then emphasize the fact that, if they're getting skin irritation from one type of baseplate, look at their regimen, talk to them about what are your steps, what steps do you follow and looking through those steps, make sure that they're utilizing mild soaps. They may be using abrasive soaps. We've come to this generation right now where antibacterial, antimicrobial soaps everybody is their go-to. And we actually may be impacting their pH overall, so looking at that. The other thing is look to make sure that they are utilizing some sort of skin barrier so that there's that sort of protective layer and look and see how they remove it. You know, I think we don't really appreciate the impact of removing and replacing. So we got a couple of questions here. So what is the thought using a flat stomal tube and placing

the Luna over that for those that use a tube at night? You know, there are some folks that do that, where they take a tube that really kinda conforms to the flat surface of the stoma on the outside so it doesn't stick way out and putting the Luna over top of that. Keep in mind, as long as they can remove it, if they have to remove the tube, so they have to easily remove that baseplate first before they, they gotta easily be able to remove that baseplate to get to the tube. So if there's any mucus that's in the tube, they need to be able to easily access that and remove it to get access to the tube if there's any mucus that get stuck in the tube itself. But that could maybe be an option for that. Any other questions that people have? Julie, I think it's-- Well, I have a question.

- [Amy] Yeah. Sorry . So I know you're talking about the results of the study that found obviously suboptimal compliance with the HMEs and it seems like proper patient education is obviously a huge, huge part of what could help compliance along. Do you find, in the places where you've worked, are speech pathologists the ones during the bulk of the patient education when it comes to do with, when it comes to HMEs and so forth? Does nursing also do it, do doctors do it, or do you find that time and time again it's sort of falling on the SLPs shoulders?

- [Julie] Yeah, it's interesting. That's an interesting question, because I think with pulmonary rehab, as you, you just think about it in general for this particular patient population, it kinda goes hand in hand because of the fact that the HMEs are now giving all of this great pulmonary conditioning and allowing someone to have this great tracheal climate, but it's also providing them a means for speaking which I think a lot of times those of us that are working with folks to achieve good voicing overall is that it kinda falls in our laps. I think just generally because we understand the anatomy of a laryngectomy. Whereas many times this patient population, unfortunately, falls to folks that consistently refer to them as trach patients when they're not trach patients at all. So I would say for the most part that education is the speech pathologist. I think you

do see some facilities, the respiratory therapy departments, do get someone involved in it. You know, the standard of care that's occurred with heat and moisture exchangers here in the United States over the last 10 years is that there's immediate post-op use of that HME. So you do also see the ENTs and the head-neck surgeons really kind of involved because of the fact that the minute the patient is coming out of the operating room is the moment that we are placing an HME on to that patient, which makes a whole lot of sense, because of the fact that why would we take all the defense mechanisms of the upper airway and wait three to four months for someone to actually have restoration of those defense mechanisms. So I think that you do get kind of everybody involved and I think nurses also are becoming more and more involved in those facilities that are utilizing immediately post-operatively 'cause the care of those patients has changed over the years. Because they're utilizing the heat and moisture exchangers and not utilizing those external humidifiers because of all the recent data that's out there that shows the significant changes and their overall outcome.

- [Amy] Great.

- [Julie] So there's recent data that shows using an HME immediately post-operatively results in significantly less adverse events, which means a mucus plugging, and they're better able to handle their secretions like we talked about.

- [Amy] I would think too that it's gotta be a time of major overwhelm for the patients. There's so many new things going on that the education you're providing about this and everything else to do with laryngectomy is gonna have to be repeated probably multiple times and over time just to help them process it al.

- Absolutely.

- And understand it fully.

- [Julie] Absolutely. In fact, the interesting thing is the readmission rates for laryngectomy is this 26.7%.

- [Amy] Ouch!

- [Julie] Get readmitted within 30 days. So that's a big thing that I know that many of you are sitting on committees and things like that about readmission. And one of the reasons for readmission was they didn't feel comfortable taking care of their stoma. And when you're utilizing an HME immediately post-operatively the great thing about doing so is that you're taking care of your stoma in an active way from the get-go. So you're teaching them how to remove and replace the HME immediately post-operatively, you're teaching how to take care of their own stoma; whereas, in years past, they were laying in the bed, getting extra humidification, the nurse and or their respiratory therapist would come and suction them and then they're like, "Okay, it's time for you to go home," and the patient's like, and the caregiver is like, "Whoa, I don't know how to take care of that." But one of the things that came out of that study out of Washington University was the fact that many times patients would come to the ED because they didn't know how to take care of their stoma, because they were so overwhelmed when they went home.

- [Amy] And are there some resources on the Atos site that would be appropriate to give out to patients or do you have suggestions for where, so that we're not all creating our own resources constantly, are there some handouts or educational materials?

- [Julie] Yeah, so if you go on atosmedical.us, so make sure you're on the US site, you click on the professional tab and there are a list of all the different care tips like I talked about which are step-by-step instructions to a sixth grade reading level or below. And there are, not only is it written but there are pictures that depict one versus another, so

you have sort of some pictorial representation. And then there's also a video that actually shot at Winter Park Hospital in Winter Park, Florida and, that has the, the various different how to remove and replace it, why is an HME, what's the difference between a trach and laryngectomy and so forth, so that's on there as well. So we kinda have a whole program. It's not just the product itself but all the educational material that's along with it, not just from the aspect of the patient but the caregivers. Many of these patients are going to skilled nursing facilities and long-term acute care hospitals as well that can also utilize that video to watch as well. So it looks like we have another question here.

- [Amy] Yes.

- [Julie] What are your suggestions for advocating for the patients with insurance companies to help them understand, and I can't see, that the generic supplies are not, I can't see the bottom of that, can you see that, Amy?

- It says, yes, it says that--

- Oh there we go.

- [Amy] That generic skin supplies are not as appropriate as the ones that are specifically formulated for use around the stoma. For example, maybe a normal or generic skin supply would contain alcohol or something else that you don't wanna have around a stoma.

- [Julie] Gotcha, yeah. I think that's where, the word stoma just means opening. So I think many times people make assumptions that it's a stoma that may be is attached to an ostomy bag or something of that. So I think a lot of times really talking to them about the fact that this is actually a stoma of their airway. And anything that's an irritant

to the airway could certainly affect the health for their airway and that they don't have a filtration. So a lot of times, Atos has really done a really good job in trying to advocate for patients. So if patients are having a hard time where they say, "Oh, you just need to go to Walgreens "and buy the one that's off the shelf," we can really work with our insurance company in talking to them about why off the shelf things are not necessarily appropriate for the stoma itself. And also it's something that you could put in your own documentation as to why these supplies are important. And I think that's really important too as we kinda go down that insurance path is to get these things covered it's really important to provide some rationale of why these things are medically necessary for the patient and relate it to how it can negatively or positively affect their overall physiology and overall health. And so I think that's really important, like a skin barrier saying something in your documentation to the effect of the patient requires the Provox Skin Barrier which is the only skin barrier that is specifically designed to use with a tracheastoma. So maybe utilize the word tracheastoma instead of just stoma in your documentation and things like that.

- [Amy] And I would think too, once, if it's sorta made clear, once the insurance company start getting the picture that if you do things right from the get-go and use the right supplies and so forth, that in itself can probably help reduce that high readmission rate with this--

- [Julie] Correct.

- [Amy] Surgery. So that that's gonna, it's going to be behoove them to pay attention to that. But I know that sometimes it takes a while to help them understand that.

- [Julie] Yeah, sometimes it takes a while to get to the right person to explain it, right?

- [Amy] Exactly.

- [Julie] Yeah, so there's a significant body of research, not just the research that I presented here today. But if you do again go on that professional site, there also are all, some summaries of all the different HME compliance articles that are out there and things like that, so utilize that too when you're working with insurance companies and so forth. That's great to have the evidence from the literature.

- [Amy] Right. So, well, I don't see any more questions, so I'm gonna go ahead and wrap it up here. Julie, thanks so much for being with us today. I really appreciate the information. I think this is, maybe we don't think about scan as being an SLP area but certainly when it comes to this, it fits right in with what we do with these patients.

- [Julie] Right.

- [Amy] But thanks very much. And thanks to our audience for being here. We appreciate your time and we hope to see you at another webinar before too long. Have a great day everybody.