Infection Control: Readiness and Response for Hearing Healthcare

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Hello everyone and welcome to Infection Control Readiness and Response for Hearing Health Care. I am your host for today's session, Dr. Michelle Hurley, senior Education Training Audiologist at Starkey and before we get started, I just want to review a few housekeeping notes that might be helpful for you throughout the course of our session today. If you do have a question, please enter that in the Q and A area. Simply type your question in, hit send and I will be reviewing those before the conclusion of our session today and providing answers at the end. If you're looking for the handout, a PDF handout is available to be accessed through either your pending courses on Audiology Online or by clicking on the link in the chat area within the classroom where we are if you are interested in earning a continuing education credit for today's session that is available with a paid Audiology Online unlimited CEU Access membership, after the course is completed, you'll be able to go to your pending courses on the Audiology Online site and pass the short multiple choice exam.

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And finally, my objectives for today is for participants to be able to identify potential modes of infection, to be able to list hearing healthcare professionals who should practice infection control, and to be able to identify appropriate hand washing procedures. So let's go ahead and get started.

Well, the concept of infection control I think is really an important one in the delivery of all healthcare and I think certainly important when we think about hearing health care as well. The threat of infection really is a concern when we think about the mobility of individuals in today's world, individuals living longer than ever before. That means that we're going to have have individuals that we're going to be seeing on a daily basis in many cases that are at greater risk of infection and disease than, you know,

the general population. So we're going to be discussing why we as hearing healthcare providers should be vigilant in protecting ourselves and of course the others that we are around, both in our offices and in our homes when it comes to presenting the spread of disease, especially when we think about our workplace.

What is infection control really in general? Well, it involves the development, the implementation and the consistent execution of procedures that are specifically designed to manage the clinical environment and reduce the potential spread of disease. And I think that that consistent execution is a really important phrase in there. It's something that I think, you know, at times, you know, we really rise to, you know, paying attention and focusing. But, you know, I think it's very easy to kind of slide back into, you know, typical habits, me included.

And you know, I think it's good to really be always refreshing our, you know, thinking about infection control and maintaining that vigilance on an ongoing basis. And the reason why is because, you know, with an infection it's really a non discriminatory process. So we really need to be assuming that every microbe that we might encounter is potentially infectious and could make our patients, our staff members and us as the providers ill as well. Infection control is not only controlling the exposure between people, but between people in the work environment. And the concept isn't new, of course, but its relevance will periodically re emerge, you know, and usually that's in tandem with the recurrence of diseases that, you know, maybe we thought to be eradicated in our country or we have a completely new infectious disease that kind of crops up.

And that certainly was where we found ourselves with the outbreak of COVID 19.

Well, infection control really is a global concern and you know, we learned that of course, you know, the hard way during the recent pandemic. And highly infectious diseases can now move quite easily around the world. So shortly we'll kind of take a closer look at how throughout history the movement of

infectious disease has really become easier. And that makes the global spread of disease a greater risk in today's world than it was, you know, centuries ago.

Well, why should we care? Well, I think, you know, because we are a caring profession, of course, and we are dealing on an ongoing basis with individuals who are either, you know, prime, you know, spreaders of disease or, you know, at high risk of being impacted by disease. And of course that carries through with our staff, you know, our families when we leave the office and go home as well. So definitely something that I think as a hearing healthcare professional we should be highly, you know, aware of and care greatly about.

We come in contact, you know, with things all the time, you know, throughout our day and don't even really think about it, you know, doorknobs, railings and, you know, handles and, you know, the list really goes on and on and you know, goes everywhere that we go. So we don't really know, of course, the health condition of the individual who might have handled those before us. And that's why we need to be conscious of this. And especially in an environment such as our office where we have more control over that, you know, we can't control, control those public spaces. We can certainly maybe control our behaviors in those spaces to a certain degree, but we can control what happens in our offices much more directly.

And that's why I think it's important for us to think about that. So I'm going to play a little video that I think really brings into focus the everyday risk of disease transmission.

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Well, I think that that video does a great job of really driving home the importance of, you know, being very diligent on an ongoing basis. And, you know, we'll discuss a little bit later how important hand washing is to this process. But I always really kind of think about this video when I'm entering a clinical environment and thinking about how I'm moving around and, you know, managing my, you know, on infection control myself.

Well, you know, I think one of the things that we really learned during the pandemic was how essential, you know, hearing is. I think we, of course, as hearing professionals, feel that way, but I think that many individuals realized, you know, the importance of that and the importance of being able to communicate with others and, you know, consequently, the importance of hearing healthcare services. So when we consider the patient population that we're often serving, whether they're young or they're elderly, they're often in a category of greater vulnerability for infection. And that's why we need to be thinking about how we need to be proceeding to deliver not only, you know, care, but exceptional care and do that in a safe manner.

When we think about infection control, the practice routines are really going to be, you know, of course, quite variable depending on the practice itself and the services provided. But it really depends mainly on knowledge, perception and awareness of disease and how we can protect ourselves and others. And certainly a class like this is a great way to be able to sharpen those skills. Most hearing healthcare professionals need to be thinking about their clinical practices and environmental settings, and we really had to start doing that. And I think thinking about that more in detail with the COVID pandemic, perception and awareness really wasn't sufficient, as we found.

And pandemic, you know, that pandemic really changed the course of how actively infection control has been practiced, you know, since that point. Not only in, you know, healthcare environments where we work, but also just in everyday life.

Now, when we think about, you know, the, the population that we tend to work with, you know, we know that there's a tremendous correlation between the presence of hearing loss and any number of comorbid conditions such as what we see here. Diabetes, cardiovasc cardiovascular disease, loneliness, and even dementia. And, you know, because of that reason, in the fact that we have other comorbidities such as diabetes, hypertension, respiratory disease, you know, we see things that are very commonly found in the elderly population. And since that is a large part of our demographic, in many cases, you know, we need to recognize that these are individuals who may be more vulnerable to disease, particularly opportunistic infections of any kind. And we'll certainly touch on, you know, what that means.

Just a moment. You know, patients come to see us for better hearing, of course, but they also may be experiencing one or more of these conditions and, you know, they might not realize that they are also the carrier of something that could, you know, create havoc when spread in a clinical environment. Which is why we need to always be vigilant when we think about that elderly population. You know, there are a number of factors that make them more predisposed to infection. That could be the anatomic changes that we see, you know, with individuals, you know, obviously thinner skin, you know, greater likelihood of breakage of bones and, you know, just illness in general.

Functional changes, you know, they're not moving around as much. You know, they are more prone to, you know, you know, small injuries that can become big problems. When we think about, you know, the open wound that can create that pathway for infection, that loss of body mass, you know, makes individuals more at risk for disease. And, you know, just thinking about the potential exposure to infection, often they're in an environment, you know, maybe like a senior living kind of community where there's more, you know, access to the spread of disease or, you know, hospitalization, which can be, you know, unfortunately, a prime location for disease to be found as well. So it really puts the burden on us as the hearing healthcare professional to be educating ourselves and then, you know, others,

including our staff and our patients, on how to take care of themselves in the work environment.

So when we think about, you know, this topic and why it's so critical to us in hearing health care, why, you know, maybe your state requires that you take an infection control course, for example, for licensure. You know, let's talk about the foundations of it and why it continues to be so important.

We're going to talk about the significant role that a variety of diseases have had in transforming the concept of infection control and the continued threat that's related to the resurgence of diseases. That, you know, we might have kind of forgotten about or the discovery of new diseases and the impact they can have on the world population. Of course, you know, we're going to say all of us, you know, around at the time of 2019, 2020, when, you know, there started to be a recognition of a number of individuals that were experiencing shortness of breath and fever. And that was in December of 2019. By January 20th of 2020, the CDC had actually the first US confirmed case of COVID 19 in the United States, and that was in Washington state.

And didn't take very long, a day, in fact, for the CDC to actually create an identity for COVID 19. And that's that novel coronavirus icon that I think we've become, you know, very familiar with, and we see reference there. And by March, the World Health organization had considered COVID 19 to be a pandemic. So that was a very rapidly, you know, growing challenge that, you know, we know, really, you know, stopped the world in its tracks and obviously, you know, had a high impact on loss of life and ongoing health concerns for individuals, you know, as do we see to this day. So, you know, that might have felt like a science fiction, you know, movie when we were kind of in the middle of that, but, you know, it was really, you know, incredibly real for too many individuals.

And, you know, it was really, I think, kind of scary to realize that, you know, there maybe was a sense that that could happen at some point in time, but then for that sort of possibility to really become real, I think was, you know, was truly significant. And, you know, I think sheds a light on the importance of

infection control on an ongoing basis. Well, you know, we've made it through that pandemic, and of course, we never know what's around the corner, and we'll look at that later on. But, you know, how has hearing healthcare changed as a result of the pandemic? And what we learned throughout that.

Well, we're going talk about, you know, kind of the importance of, you know, having very specific protocols and, you know, what to do in case of exposure to any type of infection. And, you know, again, COVID 19 was a really good recent reminder of why all of this information is so important. I think, you know, when we look at how we manage patients in today's world, it's probably a lot different than it was, you know, prior to 2020. You know, we do see more wearing of masks, whether that's on the professional side or. And.

Or patients as they come in to. We, you know, see that you know, when we are out in public spaces and you know, that's not only because of, you know, the continued risk of COVID 19 and things like flu as well, but also other infection risks and especially the vulnerability of the population. So thinking about our work environment in particular, there's of course, a variety of tools that we use throughout our business day. Very often they're being shared with other coworkers, those come in contact with patients, the tools, you know, the, the, the co workers come in contact with other patients as well. And you know, that has that potential to transfer and transmit those harmful microbes if we're not cleaning and caring for those tools appropriately.

So when we think about some of our procedures, like, you know, otoscopy, cerumen management, taking impressions, those are actions that could create some injury to the ear and that might create that pathway for bacteria to be able to invade.

Of course, we've highlighted, you know, in a way our patients that we serve. You know, we know that, you know, very often our demographic falls into that very vulnerable category, whether they're the very young or the very old. And we don't know about the health issues that they may be bringing in beyond

hearing loss. So, you know, some patients are going to be very forthcoming about their health concerns and, you know, things that could put them at risk and others they might be completely unaware of a condition that could be highly dangerous that they've been exposed to. And so, you know, we don't really have any way of telling by looking at someone if they're in that at risk category or not.

So I'm thinking about some of our procedures we mentioned. Otoscopy, cerumen management, taking impressions. All of those have that higher risk of creating a pathway for bacteria to invade, you know, by simply nick of that skin. And of course, then some individuals are going to be at higher risk because of, you know, thin skin, taking blood thinners, those types of things that, you know, put them in a higher risk category in and of itself.

When we think about our use of those tools throughout the day, you know, of course they are very important that we are practicing best practices as it relates to cleaning and disinfecting. And we'll certainly talk about those in just a moment. And you'll hear me use the term microbe throughout the course of our session today. And that's because it's really defined as a minute organism that usually causes diseases. So not every microbe is harmful, but they certainly have the potential to be.

So of course, that risk goes beyond just you know, the tools that we use, like, you know, otoscopes and, and such. It's also just the things that were around, you know, we're coming in contact with those handles, those stair railings, sinks in an office space. We don't know who handled those before that that we did or, you know, whether they were conscious of, you know, their infection control practices. So we need to really, again, be focus what spaces we can control, which should be our offices.

There we go. When we think about things like our headphones, you know, otoscope tips, you know, emittance tips, these are all, of course, very necessary in our practices, but they have the potential to transmit those harmful microbes if they're not cared for appropriately as well. Well, and, you know, now we think about all the devices that often we're fitting in a dispensing practice. And it's not just hearing

aids. You know, it means accessories.

It means, you know, the smartphones that we're all using as an accessory in today's, you know, hearing world. You know, these are all pathways that can become a source of contamination. So we need to be thinking about that from the patient's perspective, from the clinician's perspective as well.

So how did infection control become an important topic in the first place? Well, I think, you know, one of the reasons that it, you know, really is something we need to consistently be thinking about is how the spread of disease has changed over time. And it's because of travel. We know that as humans, we're more mobile than we ever used to be in the past, whether that's in our own communities or worldwide. And, you know, that means that diseases really don't have borders.

You know, previously if an outbreak happened and, you know, people didn't have, know, air travel and train travel and car travel, you know, it stayed in a relatively confined geographic area. But because of the way we travel in today's world, those infectious microbes can hitch a ride from one corner of the world, you know, to another very easily. And that's why, you know, you might not be thinking about where that patient in front of you has been recently, whether that's another region of the world or, you know, our own country where maybe there's a higher education in potential for certain types of disease or even a community that is at greater risk now. The identification of HIV and AIDS was really sort of the catalyst to changing the healthcare industry as a whole. And the first cases were reported by the CDC in 1981.

And it really led to change in how the Healthcare industry developed guidelines. OSHA and other regulatory bodies created guidelines for healthcare workers to adopt to reduce the risk of exposure to infectious agents. And that certainly was, you know, a critical moment in health care and infection control. But if we think about disease patterns, you know, when you look at, you know, the ebb and flow of something, you know, like flu and the different varieties of flu, H1N1 is known as swine flu. And

there's been, you know, other types of flu that have been, you know, know, big concerns throughout various times in history.

We also know that, you know, the flu vaccines change on an annual basis based on what is predicted to be the more common virulent strain of flu. And, you know, the same flu vaccine is not going to be effective for every single type. So we need to be, you know, aware of those changing disease patterns. Now, you know, a disease that we thought, you know, pretty much was eliminated in the United States as of the year 2000 is back. We've been hearing a lot in the news in the last year or so about the spread of measles in our country and, you know, pre vaccination years, you know, when, you know, we didn't have any way to kind of protect ourselves, there were 3 to 4 million cases of measles and 400 to 500 deaths on an annual basis.

But that was, you know, minimized greatly with the development of the mmr, or measles, mumps and rubella vaccine that was introduced in 1963. So by 2000, you know, we felt that in our country the disease had been decreased by so much that it could be considered virtually eliminated. But, you know, that has changed as time has gone on. That was considered to be a huge public health achievement in this country, and we can see that it is really rising again. And, you know, that's a result of travel, of course, reduced vaccinations in the United States.

And this is certainly no public, know, political statement about that, but that, you know, has been part of, you know, the growth of a disease such as measles that we thought was gone. It only takes three cases of this really highly contagious disease to classify as an outbreak. And we know that there have been, you know, a number of considered outbreaks throughout the United States. You know, in this year alone, it, you know, is something that, you know, we really need to be thinking about because a disease such as this highly, highly contagious, one of the most contagious possible, and it can also also lead to, you know, a, you know, high level of complication One of which includes sensorineural hearing loss.

And we mentioned flu.

And again, because, you know, it's something that is kind of so common, it's easy for us to kind of not think about the importance of that annual vaccination and making sure that, you know, we're protected because of the population that we're going to be seeing. And, you know, I think a great reminder again of the importance of this was the pandemic that we experienced in 2020. And we know that, you know, it wasn't the first and it won't be the last. And so that's why we need to remain ever vigilant. Another element that is a concern are the superbugs that keep kind of popping up.

These are, you know, different types of bacteria that have become very resistant to antibiotics, which means it's really hard to kill the little guys, and it's very easy for them to spread. And they can have catastrophic effects from a healthcare perspective. And they may just sort of ride along on individuals who are not impacted by them and then, you know, create hazards, havoc again, for somebody who is, you know, at high risk. So these are, you know, kind of popping up all the time, unfortunately. So next, let's talk about the modes of transmission.

How does an infection make its way from one person to the next? Well, you know, when you're under the weather, you know, we may still venture out in public and not really think about, you know, the impact that that could have. It's very important for us to, you know, follow those guidelines of staying home when we feel well and when we especially have something that might be contagious aegis. So we'll talk about these different modes and kind of break them down and focus on, you know, in the first case, the one that is the most frequent mode of transmission, and that is contact transmission. This is that potential spread of disease by way of touching or coming in contact with infectious objects.

Now, contact transmission can be divided into three subcategories, the first of which is direct. Direct contact involves that exposure to microbes from direct contact without any intervening persons barri or conditions. So this microbe is just transferred directly from its resting place to a susceptible person.

Very easy to do when we think about shaking hands. For example, indirect contact is when that microbe is transferred to a secondary surface, then to an individual.

And this could be something like that otoscope, for example, or a hearing aid listening piece with infectious microbes on it. We didn't clean and disinfect it, and then we went and listened to another hearing aid and passed that potential harmful microbe on to that next device size. The third subcategory is called droplet contact. And this is where the transmission of infectious microbes happens through, you know, fluids being expelled by coughing and sneezing. They land on a surface, then that, you know, susceptible individual comes in contact with that surface like a hand railing, for example.

The vehicle transmission is where we're going to have the potential spread of disease through contaminated food, water or bodily substances. And of course in our case that would be cerumen. So, you know, we need to think about, you know, food and water as being that pathway. When we think about things like norovirus and some of those really, you know, nasty intestinal, you know, viruses that can be passed in that manner and have a huge, you know, impact on any individuals. But you know, for our purposes as we'll kind of think about cerumen as that vehicle.

Another element is airborne transmission. And this is the drops and particles that are transmitting, you know, directly to an individual. And finally, vector borne transmission, this is where we have insects or animals that transmit those pathogenic agents. So thinking about a disease such as Zika or, you know, tick borne diseases, there's obviously, you know, bird flu, swine flu, those types of things that may come from, you know, something that is feathered or a mammal as well. So we need to be conscious of that in some areas of, of course in the world are more prone to certain types of vector borne transmission.

Now there are a lot of ports of entry for infection when we think about the human body. But you know, we're going to kind of approach it from the perspective of our head, which, you know, would be the eyes, nose, mouth and you know, ears, of course, which is our area of interest. So these are of course great ways for infection transmission to take place. Place. Now, when we think about the external ear canal, I always think this is a very interesting quote because I think it's something we don't really think about how, you know, sensitive the external ear canal is.

It's actually more prone to infection than any other skin surface. And you know, I think that, you know, why is because of course, that thin is skin is very thin. Obviously its proximity to, you know, a very important thing such as our brain makes it a, you know, very dangerous area to, you know, be sort of complacent about. So when we think about, you know, hearing aid wearers or, you know, any individual, you know, that might have the potential for cerumen, you know, its goal originally, you know, of course is to inhibit microbial growth. But it's, in fact, its effectiveness could be challenged by us putting things in our ears, you know, hearing aids, hearing protection, types of devices, or just using, you know, you know, AirPods and things of that nature in today's world.

So, you know, that means that that wax could be produced at a rate because of the inhibition of that with those ear worn devices. So, you know, when we occlude our ear, that typically makes that space more dark, that cerumen more moist in that canal. And you know, as that moisture is retained in that canal space, the ear's PH level actually changes to a more neutral or alkaline level. And this is one that's actually more conducive to bacterial or fungal growth. So, you know, thinking about the use of, you know, these devices, that is so common and today's world, that means that, you know, we have, you know, something potentially quite dangerous that could happen in that external auditory canal.

So from the perspective of cerumen, you know, we need to think about it as an infectious substance. Why? Because, you know, we can't tell by visual inspection whether it's contaminated with mucus or

blood. Typically the color is darker. The viscosity, you know, can make it very difficult to distinguish the presence of bodily fluids in this particular bodily fluid itself.

So we should always in our profession treat it as an infectious substance. And that's because we can't make any determinations about that simply by visual inspection. Of course, we know cerumen is quite common in our work environment. And so that means that we need to be utilizing the universal precautions that we're going to be discussing in a moment when exposed to cerumen.

Now, another infection that is of concern is categorized as an opportunistic infection. These are things that are very common microorganisms. You know, they're very ubiquitous. They might not typically infect most individuals who have an intact immune system, but they can have a very devastating effect on somebody who does have a compromised immune system. And that can be the very young, the elderly, or those that have a reduced immune capacity related to any variety of types of diseases or, you know, conditions.

So, you know, these microorganisms that con, you know, can lead to an opportunistic infection, you know, they're commonly found and you know, they may gain, you know, that access to the body through those routes of transmission that we just discussed. And, you know, they move around very freely in our environment and don't impact, you know, a lot of people, but they could again have a serious impact on the people who do have a remote reduced immune system. And, you know, when we think about, you know, that easy passage, and that's why surfaces are so important for us to protect and clean and disinfect those that we can control so we can minimize the pass of these opportunistic infections.

Well, what role can hearing products play in, you know, the spread of a potential disease? Disease? Well, obviously, we handle a lot of these devices on an ongoing basis, and there's been a number of studies that have looked at microbial growth and found it on hearing devices themselves. And so that

means that these are critical infection control concern. And of course, that goes beyond, you know, as we mentioned, hearing aids, thinking about accessories and other devices that are part of our common workplace.

So there was a study done that took a look at some of those common opportunistic infections and, you know, what impact they could potentially have on, you know, a patient that we might be seeing. And they can often lead to things like otitis media or otitis externa. And we know certainly that, that, you know, when treated, can be managed quite effectively, but it can also have, you know, great impact on individuals if left untreated.

Now, there was a study done by, you know, benchitis back in 2002 looking at infectious microbes that were actually found on hearing aids themselves. And we can see a list of recovered microbes. And, you know, obviously those are all, you know, the very, you know, fancy names, but, you know, when we think about the potential impact that those, you know, microbes can have on our, you know, patients, you know, they're going to have that greater risk for any number of diseases that goes beyond certainly things like otitis media and otita externa, but into other types of diseases that can have, you know, very superior impact on the human, you know, human body, such as, you know, urinary tract infections or endocarditis. So, again, you know, we need to be thinking about these, these hearing aids as a pathway for infection. Infection.

So, you know, as, you know, hearing healthcare professionals, I'm not advocating that we put on hazmat suits when we go to work, certainly, but I think it's critical that we do recognize the inherent risk of infection transmission in our workspace and are diligent about protecting ourselves and others from that.

So the universal precautions that were mentioned a moment ago were guidelines that were established by the center for Disease Control or the cdc, and they really are the hallmarks of infection control. And

so we're going to be taking a look at each of these categories and breaking them down into what that, you know, I think, really means. When we think about a hearing health care type of practice in particular, the first of those is personal protective equipment. And so depending on your practice, you know, that may be as simple as, you know, masks and gloves in certain instances, but it also could include, you know, the use of protective glasses as well, or even gowns, depending on the environment. Some of those can be very important.

We're thinking about doing modifications and the potential for, you know, particles to be, you know, expressed into the air, you know, more easily. In that case, gowns, you know, would be, I think, you know, most important when we think about, you know, dealing with somebody who is a known infected individual or in the presence of known infectious agents. And, you know, again, we don't always know, but, you know, there may be practices where it's more likely to need that level of PPE or personal protective equipment. So when should we wear gloves? Well, anytime there's the potential for open wounds or visible blood to be, you know, viewed, then that's a good, good time to be wearing those gloves.

Whenever we're cleaning and disinfecting contaminated instruments, when we're submerging or removing those instruments into or from, from that cold sterilant that we use to sterilize those devices, or when there's any potential for contaminated or infectious materials, such as cerumen. And of course, we know that's highly likely in our work environment. So, you know, I think it's very important that we think about wearing gloves on a consistent basis. Now, of course, a glove really should fit like a glove to be properly fit. And so this example we see on the left, where it fits very snugly on that hand, would be appropriate glove attire.

But if we look at that glove on the right, it clearly is, you know, maybe a size or two too big for those hands. We can see wrinkles. We can see gapping at that wrist area. And all those are areas in which,

you know, those microbes, you know, if there's a tear in that glove or a gap in that glove, you know, can get into the hand. And, you know, that could, you know, certainly lead to the potential spread of disease on an ongoing basis.

So, you know, in a, you know, autometric or a lab area, in our types of practice, we should have a number of different sizes of gloves to be able to support the variety of individuals that are in that workspace. The gloves are designed to be used once, then disposed of. We don't want to Reuse them because that creates risk of cross contamination. When we think about hand hygiene, it's important that it occurs before and after every patient appointment, after glove removal and, you know, any time or cleaning instruments, as we just discussed, or anytime that you feel is necessary and appropriate. So, you know, certainly don't skimp on the concept of hand hygiene because this is the simple, most effective way to protect ourselves and others.

It's inexpensive. It is something that can be done easily on an ongoing basis. So it is considered to be the most important practice for reducing the transmission of infection in any type of setting, but especially a healthcare type of setting. We also see that there's a strong negative correlation between, between high compliance rates and lower hospital infection rates. So it's critical that, you know, when we are, you know, in our workplaces, that we are washing our hands on a regular basis.

Now, I'm not going to go through all of the steps. I think that's something that, you know, we should know as hearing healthcare professionals, how to do this appropriately. But I think the key point and one that I always think about when I'm washing my hands is, you know, scrubbing your hands for at least 20 seconds and really getting into the, you know, the, the nooks and the crannies and, you know, underneath the nails and down to the wrist. And, you know, when we think about 20 seconds, that's really kind of like singing Happy Birthday, you know, twice. So, you know, from beginning to end, if we do that twice, then that would encompass that 20 seconds.

You want to dry your hands using a clean towel or an air dryer. Thankfully, we don't see those things that you used to see in restrooms where you pull the towel down. I haven't seen one of those in years. And that's. That certainly is a good thing.

The soap and water, of course, is the best method. It's the most effective way to keep our hands clean. Yet, you know, there is the convenience of hand sanitizers and, you know, while antibiotic experts really prefer soap over sanitizer, you don't always have access to a sink. So it's better to do something than nothing. So which one really is best?

Well, if used appropriately, they both, you know, have, you know, the potential to be, you know, equally impactful. But yes, soap and water and inappropriate processes, of course, is critical. Is going to be the way that we would, you know, certainly recommend. But if you are going to be using a sanitizer, you know, you want to make sure that the hands are not visibly dirty. You know, if there's visible dirt, you know, if there's, you see cerumen on a hand or something like that, that's when you should be, you know, moving to soap and water for sure, anytime you see any sort of visible residue.

When we think about these no rinse alternatives, these hand sanitizers, you know, you want to make sure that it is a, an appropriate one. So you want to avoid a product that uses the word antibacterial and look for alcohol based products. We want them to contain 60 to 95% alcohol and that's because some bacteria are becoming resistant to lower doses of that. Think about those superbugs. You want to follow sort of the same guidelines.

Keep your hands WET for about 20 seconds after application so it'll allow that alcohol enough time to kill the germs that are there. And you want to let it dry naturally. You don't want to use a towel to dry your hands when you're using this type of no rinse type of alternative. When we think about our world, of course, protecting ourselves and others by washing our hands, that's a great start. But there's a lot of things that are lurking in the world or around us that we come in contact with.

You know, we don't think about how, you know, often we use our cell phones throughout the day and where we use those in good places and places we probably shouldn't be using them. And you know, I think it's very interesting and this is probably, you know, even a year or so old in terms of this data. Americans actually check their phones about 47 times a day. And that's a lot of opportunity for those potential infectious microbes to jump aboard. And I'm as guilty as probably many of us have, not cleaning my phone as regularly as I should.

Paper currency, you know, not certainly as common today, nor is coin currency, but those were, you know, a common method of transmission because they were changing hands all the time. But we also need to be thinking about credit cards and the fact that we do exchange those when we are in, you know, places like restaurants and etc. So that can be a source of disease transmission as well. There was a study in 2009 that actually took a look at the white coats of healthcare workers. This was done by the American Journal of Infection Control.

And they found that those can be contaminated with pathogenic and resistant infection bacteria because they found that workers really weren't, you know, cleaning those coats as, you know, often as they really should have been. And so that became a prime you know, likely potential source of contamination. In some cases. Up to two thirds of those items that were tested carried very hard to treat. Mirza or gram negative bacteria, some of those superbugs that are really hard to kill.

So when we think about cleaning and disinfecting, you know, we need to look at our environment. You know, we spend a lot of time in this space, so we need to make sure that we are very diligent about cleaning it on an ongoing basis. We think about cleaning and disinfecting. What are those definitions? Well, cleaning is really kind of the first step.

It's removing that gross contamination from those instruments, but you're not necessarily killing the germs. So this again is the initial step in any of these processes. And it can be done with warm water and detergent or soap. Disinfection, on the other hand, is killing a percentage of those germs. And there's a number of products on the market that are designed for disinfection.

I would recommend using an EPA approved hospital grade disinfectant. And it's important to, to clean before you disinfect. Sterilization means that we're going to kill 100% of those germs, including the endospores. And so, you know, to sterilize and kill all of those, we need to clean first again, then sterilize. So which falls into what category we think about our devices.

You know, there's a lot of disinfection, you know, materials that are available. So you can consider what you might use to clean these. And there's two categories of devices. Those that are considered non critical and those that would be considered critical. Non critical are going to be those things that, you know, we can disinfect unless they've been exposed to the potentially contaminated cerumen or bodily fluid.

And we can use any number of hospital grade disinfectants, whether that's liquid spray or even towelettes, because there's a number of those on the market. Now if it's a critical, you know, device, those are going to be the things that need to be sterilized. And we'll talk about that. Just a moment. We also need to be thinking about, you know, the, the surfaces in our space.

We, of course, I think are, you know, cognizant of, of doing, you know, cleaning and disinfection with hard surfaces who are non porous, but also thinking about those soft porous surfaces in your environment. If you have pillows and, and things like that, those should be washed on a regular basis using warm water. If possible, and drying completely to make sure that that heat will, you know, aid in removing the risk of infection and bacteria. So what about hearing aids? How do we manage those?

Well, I think it's of course good to think about that sort of clean first. Get that gross contamination off of there first by wiping that down. Disinfect the environment. The item, excuse me, with a non alcohol based disinfectant toilet towelette, you want to make sure that you're using something that is improved to use with hearing products. And it's important to give those devices back to a patient in a receptacle that's lined with a disposable towel, not just handing it to somebody.

What about UV and its role in disinfection? You know, what does it mean? Well, you know, when Covid was kind of at its peak, there were some increased interest in ultraviolet C or UV C as a method of disinfection, but it's really nothing new. In 1877, Downes and Blunt actually discovered the ability of sunlight to avert the growth of microorganisms. And that's where we determined the fact that these uv, uvc, you know, elements can use light to damage RNA and DNA microorganisms such as bacterias and viruses.

So, you know, that's where sort of the, the foundation of UVC as a disinfection came from. But you know, should you be using it in your practice? Well, it really kind of depends. You know, there's a lot of variables and factors that, you know, impact the potential success of uvc. We need to get that surface contamination off, get that organic matter removed.

That would be cerumen, you know, dirt, those kinds of things. First, before we use uvc, the bulb strength and the distance that is created between the bulb and the surface can impact effectiveness as well. Highly. You know, higher intensity bulbs don't have to have as long exposure as the lower intensity bulb. And you know, again, that distance can impact the effectiveness.

Another thing is UVC is really of sight. So only the surfaces exposed to the light are going to be the ones that are disinfected. So it's critical to make sure we clean that device and maybe that, you know, it's moved as it's being, you know, exposed to UVC to make sure that it encompasses all of the device. So, you know, UVC may be something to consider using in your practice. You know, Starkey is a, as a

company, doesn't have any particular recommendations about the use of that because of the various variability of it.

I mentioned critical Instruments. These are what needs to be sterilized. And these are going to be those things that are coming in contact with those bodily substances, such as your carettes, your specula oae tips, for example, they must be sterilized and that will kill 100% of the germs if done correctly. The most common ways to do this would be in a larger type of medical practice, would typically be an autoclave. But more common in a dispensing practice is going to be using a cold sterilization where you soak those instruments in an EPA approved solution for a specified number of hours.

And that will depend on the material itself on that timeline. So you'll be able to, you know, identify that from the messaging on the packaging or the website of the materials. And there's just some kind of common ones that we see in the hearing world, such as, you know, Wavicide and Sporox with those critical instruments. Again, those, you know, must be sterilized. But there are certain things in our office that can't be sterilized and that typically will be your things that are more disposable.

Your plastic specula, you know, your insert earphones, your tympanometry tips, those are designed to be single use and should be disposed of after every use. Speaking of disposal of, you know, waste, in most cases, you know, it's not a concern in a dispensing practice. But if there has been blood or, you know, cerumen, we need to dispose of that in a separate packaging. And we need to take care so that it is recognized as it is its potential risk of hazard so that the cleaning staff, you know, is taking greater care if they're handling that as well.

We're thinking about our offices and our procedures and every office is going to be different depending on, you know, what you do in your practice. But we can break things down into engineering and work practice controls. And engineering controls are going to be those things that really isolate or, you know, remove the potential help hazard from the workplace. It's how you store your reusable instruments, how

you dispose of those that are disposable, how you sterilize, you know, when you do that, you know, where does that happen? Where are hazardous materials stored or practice controls?

Gets really into the nitty gritty. It's those very specific procedures, how we're going to, you know, appropriately, you know, protect ourselves when we're handling hearing instruments or, you know, managing things like cerumen removal or, you know, otoscopy of those types of activities. So you Know, we need to have plans in place for both things that fall under those controls. One of the things that's important to recognize if you're working with hazardous materials and we think about impression material and these cleaning materials falling into that category, is making sure you know how to store and how to protect yourselves from the potential risk of exposure to some of the these hazardous chemicals. How you do that is by reviewing what's called the material safety data sheet.

The MSDS sheets are going to give information about the chemical composition, the physical and, you know, chemical characteristics, the possible health effects by exposure and precautionary measures to take. You know, if something is exposed or someone is exposed. These are all available from the manufacturer of those materials and, or the distributor of the materials as well. So say, you know, if you purchase pressure material from Starkey, for example, our customer service would be able to, you know, get you the MSDS sheets for that type of product.

So, you know, how do we develop a plan to not only prevent but also, you know, resolve an exposure if it happens? Well, osha, the Occupational Safety and Health Administration, is the regulatory agency that governs, you know, that workplace safety. So they require the implementation of a written infection control plan and that should be in place in a practice and it should encompass all six of these items. So we're going to break each of these down real quickly when we think about the categorization of employees. Category one is going to be your audiologists and other health professionals who typically deal with maybe more interoperative or post operative monitoring.

You are in close contact with trauma, which means, you know, there's greater potential to be exposed to blood and other bodily fluids, so they are required to practice infection control. Category 2 is probably where most of us fall, whether we are practicing, as you know, healthcare professionals, whether we're the, you know, patient care coordinator who's interacting, you know, and contacting the patients, or potentially the hearing instruments. So again, category two should practice infection control. Category three may be that administrative staff that really doesn't, you know, have much patient contact, probably not too many of those in many of our work environments, so they can be more, you know, relaxed. But category one and two must practice infection control.

Now, HBV or the hepatitis B virus is one that there are very strict regulations in terms of tracking it. And why is because it's very common. There's a chance of 1 in 20 individuals in our country being exposed. And that, you know, certainly puts healthcare workers at great risk. So the OSHA protocols require that all Category 1 and 2 employees are offered the HBV vaccination at no charge and that any records are kept for the duration of employment plus 30 years, which is really, of course, a long time.

So I think that speaks to the significance of, you know, protecting yourself from this potential disease. How are we going to implement a plan? You know, do we have a written control plan to protect ourselves, number one. But then would we know what to do in the case of something happening? So that's going to be, you know, one of those protocols as well.

So then, you know, if something happens, we need to have a post exposure plan and records being kept as well. So, you know, this is the final OSHA protocol. But of course, one, I think that's very important. Probably not that frequent in a dispensing practice or, you know, many hearing practices, but you never know. You know, somebody could fall in, in the office and that would place them at greater risk if there was some sort of physical injury, of course.

So we need to track anything like that that might happen just in case.

So we need to be recording the circumstances under which something happened. Was there a route of exposure, like an open wound, for example, and any treatment that took place and follow up with that patient on treatment and outcome and the results. So it's really important that we, number one, have this infection control plan and that every staff member understands their role in implementing this. And that can be achieved, of course, through consistent training and refreshers. You know, especially as maybe you change procedures and you know, introduce new, you know, protocols as well as new staff in your practices.

We think about it from the dispensing practice. You know, we need to be thinking about those devices that we're handling and what that is going to look like for every element of that. Not only the handling of the hearing aids and dispensing of those, but also, you know, the listening checks, the real ear measurements, modifications, all those things where we come in contact and equipment comes in contact with those devices when we're handling them. We should wash our hands before and after any sort of sort of contact, disinfect those tools after each use, use that storage device to be able to transfer that device to that individual with a towel that we could replace after each, you know, transfer, use PPE when it seems advisable to do that, and especially that could be when handling or modifying instruments.

So, you know, if you were thinking about, you know, handling hearing aids, a great practice would be to don gloves before handling them, dispose of them after you're finished handling those devices, prior to dispensing you know, clean that device with a disinfecting towelette so we know it's, you know, prepped and ready for that patient. You know, when we're working with that patient on practicing insertion and removal and we're handing that device back and forth with them, have gloves on at that point in time, and disinfect those horizontal surfaces, like a desktop or something that might have come in contact with those devices after you dispense them, before you see that next patient. So thinking about every

service that we provide, how can we make it a safe and positive experience, and how can we communicate that to our patients? Well, I think it's important that we, you know, provide visible, you know, reference of our diligence for infection control. We want our patients to be able to see that we are taking those steps on and on ongoing basis.

We want to provide PPE for patient use if necessary, if it would be appropriate for them, and they need a mask. We want to have those kinds of things available for them. So we want to make sure that they see us delivering best practices by safe infection control. The reason why is because our patients are watching. And as a licensed audiologist in Colorado, I received this email messaging back during the COVID 19 pandemic.

But, you know, it was a great reminder that complaints can be lodged by patients. If they see, you know, that the use of, you know, protective equipment, hand washing, even social distancing, all of those things is, you know, not really taking place and is very lax in a practice, they could report that. And that certainly is not something that you want on a record for a practice. So it's important, I think, that we recognize that our actions are being watched and, you know, potentially reported by the patient population that we're serving if we're not taking care. So thinking about your practice, are you using best practices?

And that's going to be having that plan in place and following it on a regular basis and regular training so that you can make sure that you are protecting yourselves, your patients, and, of course, your loved ones at home as well. Why do we need to keep thinking about this? Well, you know, we weren't prepared for COVID 19, you know, when that happened in, you know, 2020, 2020, and, you know, really put the world on its heels. And that was, you know, a direct quote from Dr. David Arnoff, who is an infectious disease expert at Vanderbilt. You know, we're always concerned, he says, about what's coming around the corner.

But we live on a street full of corners and, you know, really, if we think about it, you know, a generation hasn't passed without some sort of emerging threat, whether that's Covid or Zika or, you know, Ebola. You know, we've had all of these that have, you know, come along in a relatively short span of time. So, you know, Dr. Arnoff, you know, encourages, you know, being, you know, concerned about, you know, not only, you know, a big pandemic like we had, but also small epidemics. Those can be certainly harmful as well, especially when we think about those antibiotic resistant infectious bacteria that are, you know, so readily available. And finally, Dr. Priya Nori, she's a leading infectious disease physician and, you know, she's concerned about these antibiotic resistant fungi and viruses because, you know, according to the World Economic forum, there are 1.7 million of those that are undiscovered to this day.

And a great number of those exist in mammals and birds. And, you know, almost a million of these could have the potential to infect humans. So that means that, you know, it's important that we are vigilant on an ongoing basis because we don't know what's around the corner or we don't know what's going to emerge as a threat in our world. Well, I want to thank you for taking the time to join me today. You'll find a list of references here for the, you know, material that was, you know, provided.

And I want to thank you again for taking the time to join me and I look forward to seeing you again in the future at another audiology online session.