TRANSCRIPT - PI and oral health webinar

If you or someone you love is living with the primary immunodeficiency, you know that the journey can feel isolating. But this June, you can see for yourself that you're not. Join us for the world's largest gathering of the primary immunodeficiency community at the immune deficiency foundation's twenty twenty six PI Conference in San Antonio, June twenty fifth through the twenty seventh. We whether you're newly diagnosed, a longtime advocate or a family member, your story matters. From life changing educational sessions to meaningful new friendships, this is where our stories come together to form a beautiful Mosaic. Head over to primary immune dot org slash conference to register now, and we'll see you in San Antonio.

Emma Mertens: Good evening, everyone, and welcome. Thank you for joining us as we wrap up the immune deficiency foundations decoding PI series for twenty twenty five. Our featured speaker for tonight is Dr. Roger Arce from the University of Texas at Houston School of Dentistry who joins us to discuss primary immunodeficiency and dental health. My name is Emma Mertens, and I'm the Program Manager for Education here at the Immune Deficiency Foundation.

On behalf of our organization, we thank you for tuning into this virtual event. Throughout this series, guest speakers provide a deep dive into clinically advanced topics from the world of PI. If time permits, this session will be followed by an audience q and a with our presenter. In offering these programs, we aim to engage and empower the PI community through education. During portions of tonight's talk, we will offer audience polls.

When a question pops up on your screen, you may submit a response by clicking one of the presented options. Also, a reminder that closed captioning is available. This webinar is made possible by our wonderful sponsors. It is due to their partnership and contributions that we can provide programs like this for the PI community. Please join me in thanking our sponsors.

Before we get started, a brief disclaimer. Please remember that information presented during this meeting is not intended to be a substitute for medical advice, diagnosis, or treatment. We are here today as a trusted source and friend to provide you with information. Always seek the advice of your physician or other qualified health provider with questions concerning a medical condition. Never disregard professional medical advice or delay seeking it based on information presented during an educational event.

Alright. We're going to kick things off tonight by asking you to answer a quick question using the Zoom polling feature. We'll give it about thirty seconds for everyone to go ahead and answer, and our question is please rank your level of awareness of how immune dysregulation impacts dental health. Awesome. Alright.

Well, it looks like we have a good mix of levels of learning and understanding in the

audience. So hopefully, everyone gets a lot out of tonight's webinar. Thank you everyone for putting your feedback in the box. Alright. And with that, I am so pleased to introduce our speaker for this evening.
Dr. Roger Arce is a board certified periodontist, Harold Amos Medical FACULTY Development program scholar and diplomate of the American Academy of Periodontology. He joins us tonight from the UT Health Houston School of Dentistry where he serves as an associate professor of Perodontics. Welcome, doctor Arce.

Dr. Arce: Thank you, Emma, so much. I'll start working on sharing my screen. Okay. Can I see my screen now?

Emma Mertens: Yep. I can see it. And then if you go ahead and yep. You're good to go. Perfect.

Dr. Arce: Alrighty. And the mic is good. Sound is good?

Emma Mertens: Yep. You sound great.

Dr. Arce: Alright. Thank you so much. Hey, Emma. Thank you for putting this together. It's been a pleasure getting to work with the foundation.
I didn't know about its existence. And one of those things in which the foundation is pretty active in reviewing the information and all of that. I did have a couple of publications on primary immunodeficiency. And to my surprise, they came back because I haven't been to be honest, I haven't been active in the field for a while. But I was able to contact with them, and she's been fantastic in putting things together.
And I was so pleased to hear about the foundation's mission and the goals and the knowledge sharing and all of these things are going to be very important for the patients. So I've been honored to being as to be part of the foundation. I look forward to playing an important role in the upcoming activities with the foundation. Okay. So as I'm indicating, in Houston, Texas, So pretty is from Houston.
We had a very nice weather today. It was sixty six degrees. So that's probably as as cold as it gets around here. It can sometimes it can get colder. But is being very nice.
So I'm saying hello from the Texas Medical Center, which is a large it's known to be the largest in the board. I'm not exactly sure where that's the case, but People here are very proud, they say, is the largest medical center in the world. We have to check on this core footage of that and all that. But I can tell you it's pretty big. And and there's plenty of medical institutions and all that.
And the University of Texas Health Science Center is being part of that. And then I am showing you here my place of work, which is the school of dentistry. It's the south part of the Texas Medical Center. So this is where we see our patients of all dental specialties. We

have all of the dental specialties in the building.
And of course, in my department, we're focusing on periodontal policies and gum disease. And this is where we're gonna be covering today. So, hopefully, we're gonna be able to have our presentation based on regular questions and their answers So we have this a little bit more interactive and, you know, sometimes we, you know, academicians and scientists would like to go a little bit into the details, but I wanted to just make sure that my slides were to the point, and and they had a strong take of messages, which I'm gonna be in reinforcement all the time as we go through the presentation. So as simple as they can be, they can be complex too. But If you have questions, please, at the end, we're gonna have a good time to address some of them.
And, you know, my primary role as a clinician, the technician, and a scientist, is to give you my best educated guess on the topics. There may be some particular questions. I'm not qualified to answer and that will be okay. But I promise I'll I'll do some research on that, so I'll write it down and get back to you. But the point thing here is that we have a good time and that we understand the take a message messages that we wanna convey during the presentation as to why this is so important.
So why the primary immunodeficiencies affect our oral health? So it's simple and I think that you're familiar with the concept of reduce ability to control microbes in the mouth. That also applies for your respiratory system, which is the most common site of infections with patients with primary immunodeficiencies. Also, the GI tract and things like that, but the mouth is gonna be a very important place because if you think about it, everything is gonna pass through the mouth. That's what we're we're we're we're used to eat.
That's why we used to talk. So we're in constant interaction with the mouth and the environment. And of course, as you can imagine, we're gonna have a lot of bacteria in the mouth. I mean, the areas for that is that maybe if you forget to brush your teeth at night, the day after morning, you're not gonna have such a wonderful breath. Right?
It's gonna be bad breath. And and and you probably wonder, well, what was happening? You only forgot to brush my teeth. Well, the bacteria you know, the bacteria took over in the night and just they they over populated your mouth. And when you have bad breath, that's the most obvious areas that we have allowed a bacteria in the mouth.
And that's the reason why in primary immunodeficiencies, we are going to have an effect on trying to deal with this bacteria. Not all the bacteria are bad. We actually need a lot of bacteria in our mouth to process a lot of the nutrients that we need from them, especially for example nitrates, which are gonna be very important for our cardiovascular function. So we need the good bacteria, but we also have to control the the bad bacteria they they buy back to you because they're gonna be bad for our health. And and and that's why even if we have a primary immunodeficiency, that's gonna be even harder for us.
Okay? And, of course, the the issue of having higher susceptibility to other infections is not

only going to be related to bacteria, but we also have fungi. We have fungi in the mouth. So namely the best example is Candida, Candida albicans' name and you all heard about candidiasisor the most common way of knowing, candidiasisis thrush. So plenty of you probably have heard or have experience, unfortunately, this type of situations.
And viruses also play a role in this regulation about deterior interactions with bacteria and fungi, viruses are also going to be important in the primary immunodeficiency patients because you also can have those having a toll on the patient's oral health. Okay? So again, so just to recapitulate what we're saying is that the primary immuno deficiency is gonna reduce our ability to control those microbes and increase our higher sensitivity to other infections And that's gonna definitely affect the other diseases because we have plenty of microbes. And when I say microbes, it's not only bacteria, it's also fungal, it's also archaea, it's also viruses. So it's just micro microscopic, microorganisms.
Right? And they're gonna facilitate all of these issues. And there's a connection in the mouth with their oral health. We've been doing a lot of research in the past twenty years connecting good oral health with good overall health. So things are not disconnected, you know?
I don't know. At what point, the dental allocations sort of, like, when so specific to dental, and the medical education went so specific to medical, but there's no bodies without a mouth and there's no mouth without bodies, their respective bodies. So it's very important to always understand that everything is connected. So if you have an overpopulation of bacteria in your mouth, you can rest assured that that's also going to affect your local microbiota and that's also going to affect your respiratory microbiota in your lungs, and that's also going to affect your gastrointestinal microbiota. So you keep hearing for example about this topic in in, you know, in in the press, in the news about the microbiome.
So we have an oral microbiome, and we have a lung microbiome, and we have a GI microbiome, and these things are incredibly interconnected. They're not independent from one each other, and there's plenty of research and evidence suggesting that if you start having these regulations of things that happen in your mouth and they're gonna affect the microbiota, the microbiome in your mouth, you're definitely gonna have an effect on your other microbiota in the body. And that can lead to consequences that can lead to facilitating other type of diseases and complications. Okay? So let's answer some questions.
So I individuals with primary immunodeficiencies and higher risk of all of disease. So you you can guess. Right? Fortunately, that is the case. And and and there's definitely a lot of clinical areas suggesting and and probably your own experience, you know, that you've had it and and that you have to deal with this.
And there's basically three things that we always have to remember when it comes to that high risk of disease. You're gonna have more inflammation. Okay? So you can picture

inflammation as swelling. So you're gonna have some examples.
And I hope they're not to gross or to graphic. My apologies if they if if you feel that way, just make sure you close your eyes. You don't see that stuff. It's not pretty. But I just wanted to create you know, to give you real life examples.
So you're gonna imagine swelling, right, swelling of the gums. So if your your gums are puffy and your gums are bleeding, you probably are experiencing a complication. You're that's not normal. That's not supposed to happen. And we're gonna have good examples about that.
And ulcers, ulcers in difference from what is swelling the inflammation in mouth is. Usually inflammation doesn't have any pain with it. There's discomfort, but there's no pain.
Whereas in contrast, Alcers are extremely painful and uncomfortable. You know, when you have them and they're uncomfortable and if you have dentures, they can drive your, you know, make your life miserable because there's it's uncomfortable and you're irritated and those ulcers can be inside them out or they can be on your lips or on your face.
So there's so many places and you can have different types of ulcers and different kinds of viruses associated to those ulcers. So we're also going to have some examples on that. And gum disease, which is what I work with all the time as a periodontist, we always are taking care of the tissue surrounding the teeth. So Perio is surrounding, right, dentists, the part is the teeth, so surrounded the teeth, so mainly gonna be the gum tissue, the pink tissue. Right?
And it's gonna be the bone supporting the the structures of the teeth. So the anchoring structures of the teeth. So you're gonna have the bone and you're gonna have the pink gum tissue. So all of those are gonna have consequences when it comes to patients on primary immunedeficiency problems. Okay?
So you don't have to be a dentist to know that something is solving here. So we have on the left a very healthy situation. So your gums should be coral pink. This is how we describe it. So very, very pale, and you shouldn't be having any redness or swelling.
And you you if you compare this to this situation over here, you see, for example, that you have blood. So blood, it's at at the early sign of swelling or gingival information, and mainly as we call it, in dividers, bleeding through your gums is not normal at all. Don't let anybody tell you otherwise. If you're bleeding through your gums, that's a serious issue. It's not to be considered something, oh, it's not a big deal.
Yeah, sometimes if you are healthy, but you happen to have eaten something that got stuck in there and you're cleaning it and you probably overdid it and you create a little bit of trauma and that led to a little bit of bleeding. That's occasional. That's fine. But for example, if you're brushing your teeth and you see blood on your toothbrush, that is not normal. That is not normal at all.
That's not a normal situation. That's something that you have to go and seek help

immediately. And the thing with these diseases, in in terms of the gums, they're very silent. They don't give you pain. So for example, if you ever had that experience with your brushing your teeth and then you notice the blood, Right.
And then the taste of the blood and all that. But usually, if you clean very well, it goes away. That didn't give you any pain at all. Imagine if it did give you pain. You will go to that.
It's way quicker than you were planning on doing it because, yeah, I hear it all the time. Patients is the first thing they tell me is I hate the dentist. I have to deal with them because of their life experiences and their you know, when they were little kids, they were not treated the right way and they have this traumas for the lifetime. So I always, you know, have this the best idea that I can have on my pages, but they always tell me, I don't like being here. I don't like the dentist.
So we have to deal with that all the time. But we we usually convince them more while they end up loving us and and coming to or help on our character quite frequently and it becomes a very nice relationship. So yeah, again, so if you see this, this is not normal and you can see how puffy gums are. Puffy gums are not normal. Something is going on.
So you have to make sure that feel free to know, in your mirror, take a look, you know, move your lips around. Right? Nothing wrong with that and make sure when you clean your teeth, that because you don't have any pain, it's very silent. So feel free to just go look and make sure that they look very pinkish and that you're not seeing any evidence of bleeding like this. That's gonna be very useful as a cell a screening type of tool to make sure that you're not having any any any issues going on because this is very silent.
Process. It doesn't give you any pain. If it did give us pain, we probably will have an early intervention because there's pain you're gonna look for help. Usually, when there's pain in dentistry is because it's kind of late. It's either because your kids are wiggling, they're moving too much, and they're comfortable.
So the competition is way more advanced. For example, in the in the case of tooth decay when you start having a toothache, it's probably because it's been years of activity with the decay going through the layers of the teeth and getting to the nerve. So it doesn't happen immediately. It takes a long time. So this is the very chronic diseases.
Okay? So let's come back to some important questions. So why dental issues are common in primary if you get immunodeficiencies? Well, as you can imagine and you've been learning about this a lot, there's impaired immunity. So your cells are not working the way they're supposed to or you don't have enough of a very particular type of cell.
So that's gonna be the fact that the immune system doesn't have the the right tools to part of this infection. Right? And even in patients that don't have primary immunodeficiency, that's the way it works for gum disease. For example, we have some patients that will never brush their teeth in their lifetime. Like, they've never seen, not here in America, but worldwide, they've never seen a tooth brushing their lifetime, and they have very little gum

disease.
That means that their immune system is able to get to a stage in which is self controlling. And despite the fact, there's a lot of black, a lot of bacteria because there's not tooth brushing, there's not the disease process taking place at the same rate. And quite unfairly, we have the other side of the coin in which you have patients that brush their kid very good, very diligently. And they deal with periodontolysis all the time because their genes make them prone to have compasses. Even though they may not be primary immunodeficiency patients, their genes, their genetic makeup makes them to sceptible to see just a little bit of bacteria and overreact to that bacteria and cause gum disease.
So you have the wide array of patients in that is a spectrum of no brushing, no gum disease and brushing a lot and you have consciousness. If you add to that primary immunodeficiency, of course, if you have impaired immunity and your cells are not working the way they're supposed to, well, you are gonna have a losing battle right from the gate. Go, because you don't have anything to defend against the bacteria, which we're always gonna be there. No matter how good we approach our teeth, how frequently we're cleaning our teeth, we're gonna have bacteria all the time. Just to give you an example, It only takes five minutes after a good brushing of the teeth or the bacteria and the mouth to reattached to the teeth and start forming flat again.
Five minutes, and that's it. So they're always there. They're supposed to be with us we're supposed to qualitative and be happy to share with them, but not let the bad guys, the bad bacteria. I'm gonna give you some examples of what those bad guys or bad bacteria are. They're gonna always be there with us.
We're not gonna be able to get rid of them. Powering new system tolerates them in patients that have the genetic makeup to do so. If you have impaired immunity, you're not going to have the tools to be tolerant to this bacteria. So you have to have special care and you're going to have to have a more active role in being proactive in terms of prevention of the disease just to make sure this is not gonna happen. The other part of the picture in here is that, as I was saying before, this inflammation is very chronic and it doesn't give you any pain.
And that inflammation being chronic because you have impaired immunity. So you have an accelerated rate of tissue damage and persistent of infection because there's no immunity to defend you against those bacteria. So you're gonna be prone to having that tissue destruction and that persistent of back bacteria. You're not gonna have enough tools to fight it off, and that's gonna be a little bit more complicated, and that's why your trimming has to be tailored to your specific needs. So take a message.
Right? The cells are not working properly. And the infections in the mouth are very chronic and they're very persistent and they're very stubborn and they're always there with us. It's up to us to try to impair their growth and and and have better tools to gravitate each other

with each other. Okay?
So, look, this is a a a periodontal disease patient. This is not a primary immuno deficiency patient, but this is a typical periodontal disease patient that has a very chronic condition. This patient never complain about pain. But this the these conditions can be so disruptive. You can see here that the gum is so disruptive in here that you can see that the tool looks longer and this to it right here is gonna be wiggly, and it's gonna be moving a lot upon function.
So those states when you get at that stage, they cannot be saved. It's too late to do anything about it. And then you can see the black accumulated shutting here because this patient is scared, because there's so much bleeding, so the patients don't know what to do. And then you get to see very clearly the redness of the inflamed issues. That's inflammation.
That's not normal. That's not supposed to be there. Look at this. This is the calculus that's the calcified bio filled bacteria has been growing during this time. And it's getting even tougher to clean and tougher to protect.
So even regular to brushing wouldn't be able to treat this tooth because now the biofilm is so ingrained into the tooth that you're not gonna be able to even brush it and clean it. Now we we need to seek professional help and we're gonna have to use those tools in dentistry that make weird noises and they're not comfortable. Sorry, yes, that's the only thing we have. We have to use those tools to make sure we're gonna be able to remove that biofilm, calcify biofilm, namely the tartar or the calculus, to be able to try to get you to a reset of your microbes and the bacteria, the bad bacteria get you to a healthy situation. So you can see here, tarter accumulation, inflammation, recession, bone loss.
This is a very disruptive process. And look at this is painless. Patients don't feel pain. They feel discomfort because their teeth start wiggling. So imagine you're eating and your teeth your tooth is wiggling and you can move it with your tongue, it's kind of a weird feeling.
But then it's not giving you pain. Let me reinforce that because as usually what happens, patients don't pay attention to to these situations soon enough because it doesn't give you pain. It's painless. Okay? So when you notice your teeth wiggling, that's kind of too late. We're gonna have to strike that tool because we're gonna have very little tools to try that to say that to the ear mouth. So it's very important to understand those features of gum disease, which is very prim preliminary primary immunodeficiency patients. Okay? Okay.
So this picture here is kind of gross and it's AI generated.
So this is not real. But what I'm trying to showing here is an example is, imagine if you had a huge ulcer in your hand, you will see it and it will be painful. You will know that you have something bad in your hand. And when it comes to the mouth, you don't see it unless you go and look, you don't see it. So it's very silent.
You don't see the ulcer in your mouth and you're not having any pain. So Can you

understand the problems I'm trying to make here? If it was in your hand, you will know something's going on. You will go to the doctor. Body because it's in the mouth, it's heated. You're not seeing it. You're not paying attention to it. Well, let me tell you. If you were able to get the gum tissue out, all the surface area of the gum tissue and put it on your hand, it will be equivalent to the bottom of your hand. That's what the graph is trying to show you.
It's a made up graph. It's AI generated. It's not real, but it's trying to get you to understand a point. You're swallowing gums like we saw in the in the previous station. If you were calculating that area of swelling an alteration with constant infection and influx of bacteria that will be equivalent to the palm of your hand.
Can you picture that? Could you imagine how big it is? We sometimes think of competitions. They're so little. They're they're they're not doing anything.
They're doing a lot. They're doing a lot. It's very important. And imagine if you have that ulcer or if you have it, but it's not giving you a pain. You don't see it.
But if you were seeing it at heart in your man, in your hand, and the pound in your hand, you definitely do something about it. So this is how important it is. The gum health is so important because if you don't pay attention to it, you have that swelling and that inflammation all the time, that's when the problems are gonna start happening because you're gonna be susceptible to that bacterial influx. Remember, we discussed the bacterial there all the time. We're not gonna be able to get rid of them.
And they're gonna be just acting, acting in there without you even notice you're not seeing it. So swollen ulcerated comes in terms of surface area. It's equivalent to a big sore covering the pond of your hand. And that's something that I want you to get in your head so you can also tell your family members and you also can tell your friends, bleeding gums are not normal. Their ulceration is evident of ulceration in your mouth and you don't pay attention to it because it doesn't give you any pain.
But now that you know, you're gonna be like, ah, if you come start bleeding, that's not normal, you better, better go to the dentist. That's gonna be something to pay attention to. Okay? And why this gum disease happens, but it's multifactorial. So you can see here that the bacteria forms the tartar and biofilms below the gum line.
So the gum line is here And this is where they love to thriving here in this area. And why is that? Because in this area, there's less oxygen, and this bacteria love the absence of oxygen. They're called anaerobic bacteria. And the bad guys are these guys over here.
We culture them in the lab. This one is called Actinobacillus actinomycetemcomitans. So if you learn how to say that really, really quickly, I'll make sure we we get you an award acting on this attend competence. You have to learn how to say very quickly. And then Porphyromonas gingivalis, these are the bad bad guys.
When we culture this in the lab, we intentionally make the students data students go to a lab, and a smell this. This smells like rotten egg. This smells like dead. It's horrible smell.

That's the stuff that is in your mouth.
It's very nasty stuff. Is very nasty bacteria. Okay? And then these biophones get into your tissues and they create these alterations. Remember we were talking about the ulcer in your mouth.
This is what's happening all the time, those bacteria with their biofem protection because they're full calcifying tatra, tatar, then they're gonna be challenging, infecting, creating bleeding. If you're bleeding, it's because you have all duration. You broke that barrier that protected you from bleeding. And why is bleeding? Because you're having this local inflammation and the inflammation comes with dilation of the vessels to facilitate migration of the new cells to fight of the infection.
That's quite so easy to quit when you have an infection because your blood vessels are fat, trying to facilitate the migration of those cells to fight of the infection. The body is just trying to offend itself from this biophones, from this bactere biophones. And what ultimately happens? Well, you don't have to be a dentist. But in here, your bone should be way around here, but you'll start seeing this destruction.
Is destruction of bone. Why? Because first is your pink tissue, your gum tissue is trying to fight off the infection, but now your bone tissue is sort of like given up and it's trying to run away from the infection side. And the way the bone tissue do does run away from the infection is by creating resorption. The bone gets resolve resorption.
It gets served like melted away and runs out of the infection. That's the reason why you lose a structure of support and then you start having wiggling teeth because they're gonna start moving because they no longer have support. And then we have the situations in which we're doing surgery, trying to bite off the infection locally, and then we have a very compromised stood over here. As you can see, this is not normal. Your bone should be covering this.
Your how comtissue should be covering this. So that's an advanced stage of the disease process, you never have pain with it. It just so happens that you're susceptible to the compasses, and this is the way it's gonna play out. Okay. Okay?
So the new system and the multi interaction interactions never stop. Okay? As we're discussing, they're not gonna go away. We better get used to them. There there we actually need them to some extent, the good bacteria we need them.
We cannot have the bad bacteria. So look at this. These are beautiful images. This is from the microbiology perspective. Beautiful bacteria associations.
And we are able to sort of label them under the microscope and look at those formations of biofilm because people are trying to come up with products that fight off this bacterial formation in a better way, a more efficient way. And We have good products that help, but this does not replace professional cleaning. You still have to have professional cleaning because bioinformation is really hard to bite off. No matter how much advancement we

have in science, we haven't had or come up with a product that's gonna be able to fully control the infection process from the bacteria point of view. People ask me all the time. Look, but I I use this thing, you know, just a brand, my wash all the time. Why I'm getting this because I'm supposed to be fighting, you know, healing all those bacteria all the time? Well, it doesn't work that way because remember what I told you, after you do something and you start eating or even just not eating after a while, the bacteria is gonna come back and colonize. You have saliva in there facilitating the colonization process is just gonna happen, not as well as get used to it, but we have ways to find it out. And this cartoonoid heat is showing you healthy situation.

Right? We call synbiotic biofilm, which is the biofilm that is very healthy. And then we have homeostasis, so we can tolerate that. So that's the reason why we don't have to brush every hour. Right?

But if we brush hopefully three times a day, but acceptable two times a day, we have some level of tolerance with those good bacteria. But if we don't brush for a day or two, you Growling will experience the bleeding we were talking about. And when that happens, if patients are susceptible to this is, you're gonna start having all these infection now affecting and disrupting your bone. So you see how your bone in here is healthy. And parallel to it, you see how it's getting destroyed and you're getting the alteration in there. That's when the problems start to happen. Okay. So now that we have an understanding of what the concept of gum disease is, Now we're gonna start getting into the specifics of some examples of what the innate immune effects are. Right? So you probably have heard have heard this before coming back to it.

You have two types of main immunity or immune mechanisms that you have, the innate immunity, which is your cells fighting off the infection, and your adaptive immunity, which is more the antibody mediated immunity. So learning from the infection process and creating your own antibodies. But when you have primary immunodeficiency, that process is going to be affected on both levels, on the cellular level or innate immunity and on your adaptive immunity or your antibody creation of of of to fight these infections. Okay? So the scar first day innate immunity part.

Okay? A the cells. Okay? So the most common example for this part are the neutrophil dysfunction. Neutrophils are so important in controlling gum disease.

Remember when we were saying that the blood vessels dilate to facilitate that migration of the cells from the blood to the local side, the gom, if you don't have neutrophils, you're losing such a good an important battle because neutrophils have the first line of defense with invading microorganisms. So they are forming the biofilm. They're getting protected by that crust of tartar, classified biofilm. And on top of that, they're shedding bacteria that is invading your gum tissues, creating that alteration, and you're trying to fight it off. Your body's trying to fight it off, but you don't have neutrophils.

So you're gonna be in a disadvantage because you don't have very important cells that are gonna start biting off the infection. So the typical examples of these situations are leukocyte adhesion deficiencies (LADs), severe congenital neutropenia (SCN), and cyclic neutropenias. Those are the main the most common scenarios in which you have cell mediated impaired immunity. Your neutrophil dysfunction is gonna lead to severe com disease. That usually happens very early in time, so as we learn with these patients with primary immunodeficiency, the first signs of of early gum disease are happening when they're just kids, very early stages of life, swallowing gums, bandy dialysis, fungal, overgrowth, and things like that are gonna be red flags that something may be going on. K? So let's see stomach samples. So for example, in here, lymphocytosis deficiency, So you have alterations. This, for example, can happen in your gingival areas, your cheek and papillae, and look at the level of swelling that these kids have around their teeth. It's very obvious.

It's very massive. That kind of inflammation is not normal. To what the normal immunocompression patient is. They can develop that inflammation, but it's not so overt. But it's just like what we were saying, because you don't have the neutrophils fighting for you, all your lymphocytes in this case cannot roll over and go from the blood vessel to the side of infection.

They're going to be prone to this type of situations. Many of these patients lose their teeth very in a very early stage, they can be losing their primary dentition and also their permanent decision is when it happens, it's really hard to treat, especially because it happens in such an early age. Okay? This is an example for example, how horrible severe conjunctiva neutropenia can be, So these patients can have persistent ulcers in their mouth. They can get candidiasis or the fungus overgrowth.

They can get abscesses, local abscesses. Sometimes they even pop them up by themselves because it almost looks like a pimple. So these patients are popping up their own abscesses. But the periodontal destruction is so severe that is very common for these patients to lose their kids in a very calm in a very early stage of their life. Okay?

And then the cyclic neutropenia, as the name indicated, is a period of exacerbation, which is cyclic and then periods of remission. These patients get also a lot of ulcers, and there's a little bit of healing when this cycle is not active. But when a cycle is active, it can create this level of inflammation and it can also lead to tooth loss. So also, very difficult to treat as well. Okay?

These are other examples of innate immunity or your mediated immunity in these cases of of c two a issues of cases in which we have other syndromes that can play a role in this. For example, in here, we have chronic, chronic granulomatous disease, or this is known as Wegner's disease. So this retinal disease comes with mucosal alterations or alterations, gingivitis, amperionitis. Chediak–Higashi syndrome that comes with ulcers candidizes, an

early aggressive periodontitis. We no longer use the early aggressive periodontitis term anymore, but what that means is that it's very just like you you can picture from the name, early because it's an early stage of life.
Remember, we talk about how chronic these diseases are supposed to be. So you only notice the teeth wiggling when they're in your forties, for example, commonly, but in early stage and you're alive when you're in your in years, you're having these type of situations or even in your primary intention when you are, like, six through twelve, that can be a sign affecting your teeth. That's gonna be a problem because that's gonna lead to a very early onset. Aggressive because it's very quick in causing the problem periogenesis. Papillon–Lefèvre syndrome syndrome, which comes with very severe early parenteritis.
We have some examples, leads to early tooth loss, and APS one, which is comes with oral candidiasis and some developmental defects in your teeth. They're called and I don't know how to place your it look like different. I intentionally didn't include those for the sake of time. I wanted just to focus on the com to is. Okay?
So we're gonna have some examples in here. So this is vectors, so you can see the inflammation, ulcer patches, it can happen in the toilet, in the cheeks. Two very disrupted diseases. It also can come with swelling of the lips. This is cardiac Hibachi Syndrome.
You can see the inflammation is not normal. It's very apparent. It's very aggressive. Very abnormal conditions. And you're popping on the first syndrome that comes with other manifestations for diagnosis is that palmar keratosis as you can see here, manifestations of your skin, the palm of your hand, of the palm of your ear, and also prelunctivitis is as part of the classification for papión liver syndrome.
As you can see here, You don't have to be a dentist to know that that doesn't look good. You see the teeth don't have any bone around them. Right? They're almost like floating in there. It's very common for these patients to lose their teeth, unfortunately.
Okay? Now let's discuss the adaptive immune effect. So remember, adaptive now is related to low antibody production or deficient antibody production or deficient antibody quality or deficiency of the antibodies. These patients are very prone to infections and ulcers. So you have, for example, your common variable immunodeficiencies and your BTK [efficiencies], rather excellent or oxalate link.
So let's see some examples right here. So that's the common variable immunodeficiency. This is more localized. It's not as massive as they are innate immune mechanisms. Mucosol common variable deficiency are more prone to complication of a specific area in the mouth.
For example, this patient has in here breaches and grounds that may be difficult to clean and that probably makes him prone to have more localized infections in this area over there. These patients also have a lot of higher pongo and vital susceptibility. We get higher rates of Candidiasis and very frequent viral ulcers. Okay? So we have in here, Candidia as

pretty as you can look at the microscope is very nasty and difficult to treat, and it's not fun to have, stroke patients is very debilitating and uncomfortable situation.
And the viruses also cause these ulcers especially the herpesviruses can create these ulcers that are also very uncomfortable to bear. Okay? So this is, for example, pictures of the Candidiasis, they can form these patches, sometimes they can wipe off, sometimes they leave a trace of inflammation. So when they do and you can see, like, they're getting stuck in the tissue, they're the erosive kind, so they have to be treated with more potent and the concomitant medication. That that's pretty in combination with the physician and the dentist.
Sometimes they have this patch looking type of thing in which they can be wiped off, but you need some mouthwatches especially a medicated my watches that can treat the local infiltration of the fungi into the tissues as well, that a little bit easier to treat in that regard.
The ulcer is very common. Right? So so you have your your your typical blisters that can happen. Seasonal related or people that have them know where they're coming because they start feeling a little tingles sensation.
So that's called the pan room stage. And then a a good trick to start treating them early is that you can apply salt to them because that they had trace the process and delayed the onset of the virus, you're still gonna develop an ulcer, but you shorten the time span. And there's also medication that we can use to treat this type of lesions. But they're very common and very, very recurrent as well. There's also some advanced situations of patients that are having primary immunodeficiency and can have susceptibility to other viruses.
For example, Epstein Barr virus, which is very related to cancer in the mouth. Can also create this type of lesion, lesions that are very difficult to treat and they require sometimes because the cancer is so advanced in their stages. It requires resection. Unfortunately, they're very difficult to freed. So these are other type of viruses that can play a role in that that we don't want to have.
We always want to be very diligent and to avoid the progression of the cancer and better diagnose it in an early stage. So it doesn't have to be as receptive. Okay? So of course, many of you take immunoglobulin therapy, of course, an IRT, and we we wanna know whether that's gonna be a good thing to fight off the infection. Right?
You don't have antibodies to fight off the infection, so you're hoping that the medication is gonna help you out fight off the infection. So what is the impact on the streaming of these diseases? Okay? So In reality, we're still learning because these medications are relatively new and they're improving, but we still need some more research. So we don't have a very well documented response in terms of the immunoglobulin therapy in helping us fight off infections.
We still have more areas. We we need to come up with more studies to really understand

what's the real effect. But I can tell you that it's going to have a good effect as as the preliminary data suggest in. So there's a little bit of hope in there. So we don't have a well documented areas available in the medical literature right now because most of the literature is focusing on respiratory systemic infection.
So as dentists, we get to work and collaborate more with decisions, we can get there. But I found some preliminary reports that are very, very promising. For example, we have good evidence that your microbiota in your lungs and in your GI tract gets better with immunoglobulin therapy. And we know that there is an association with bad bacteria and bad microbiota. So you can infer that also by creating your adaptive immunity and helping out with better anti body responses.
You can have decreased susceptibility to respiratory infections because your mouth is also getting better. If it wasn't the case, your mouth will be getting worse. So just by improving your local microbiodes here, you're improving your respiratory microbiodes in there, and then you have better tools to fight off respiratory infections. Especially in those patients, we have low levels of IgA and IgM levels. This relationship appears by directional And the dysbiosis part, which is that this organization of bad bacteria causing disease is causing the respiratory problem, but the idea is helping organizing, getting instead of these biosis is helping to create more synbioses which is a little bit more hopeful in that regard.
So even though we don't have the clinical evidence to say, this is the case, there's some clues that is suggesting that that could be the case, and we have to propose research to really demonstrate this. We know from research and even reports that have been able and be have the pleasure to be part of in which we have analyzed the effects of oral and GI tract microbiota and how everything is connected. So again, it will be crazy to think that that big ulcer in your palm of your hand would have caused disease, that big ulcer in your mouth wouldn't be able to infiltrate bacteria and affect your GI tract and your respiratory tract. Everything is connected. And we have plenty of areas to suggest that when you have a better oral health and control of your oral microbiota, you have good effects on the overall health and systemic health including the microbiota or the microbiome of the gut and the microbiome of your lungs.
So this is all connected and there's so good promising areas that that's gonna be the case. This one is excellent and this one is also very promising. The IV IG that was administered as a mouthwash in a clinical trial demonstrated that as a mouthwash, just local application three times daily for two weeks, reviews Candidiasis, infectious susceptibility, by almost seventy to a hundred percent. That's very good. This is suggesting that immunoglobulin that you can take is providing your local mucosal benefit when applied locally.
So that's the citation in there and twenty eighteen. So fairly recent areas, so hopefully those products are going to be more available in the market and local watches with immunoglobulin in patients that have recurrent candidiasis can be treated with this type of

situations. So that's almost also very promising. So again, we need more evidence to really, you know, assertive say that the IRT therapy is gonna help you out fighting off the infections, but there's good clues and areas suggesting that that's gonna be the case. Okay?
But of course, we know that we're not gonna be able to come up with a medical medication that is gonna be a coronary dumb tissue. We're not gonna be able to come up with a medical medication that is gonna be able to control for that data formation and biofilm formation. And we're not going to have a medical immunotherapy combination that is going to just control these diseases. As we know from this lecture, there's so many factors playing a role and that's why we have to fight this off from different fronts. Okay?
So this does not replace oral hygiene. That means that you have to be extremely obsessed about keeping excellent oral hygiene. And it's not going to prevent plaque clearing diseases because if you let the plaque to form, no matter even if you're a healthy patient or primary immunodeficiency patient, you're going to be susceptible for that problem anyways. So we always have to be taking care of that plaque formation and especially in the primary immunodeficiency patient, we have to be even more diligent and more, what unquote, obsessed about the situation because it's very important. Okay?
So how primary immunodeficiencies affect their health over time? While we have early onset of issues and faster progression of the disease. So remember when I was telling you, there's patients that do not form pre owned diseases, and there's patients that form pre owned diseases very rapidly. So the primary immunodeficiencies are going to pull you to the extreme of very early onset, very early destruction. That's why these patients have to be observed and monitor constantly.
Okay? Where they come a long term parlance where you have recurrent authors and persistent information. Okay? So that's why you have to be on top of things and when they happen, you have to be very proactive in treating them. Okay?
So how do we prepare for dental visit in the primary immunodeficiency patient? So the first thing is to share information. So you have to share your lab results, your history of disease, and coordinate your dental visit with immunologist and see where you are in terms of control of your disease with your immunologist so you can move forward to the next phase of the dental treatment. Then sometimes you have to not only assess the stability of the new condition, but also because you know that there may be some overgrowth of bacteria. And during the procedure, you're going to be more susceptible to the infections.
There may be some situations in which we need to treat you with antibiotic prophylaxis. So we have to give you antibiotics in advance before your dental procedure just as a layer of prevention to avoid that bacterial overgrowth in there. Okay? So during dental treatment, of course, we have to be making sure, you know, many of these patients have a lot of pain, so you have to be gentle techniques. Of course, there's immunosuppression.
So we have to have places in which we have good protocols for enhanced infection control.

And then after the dental procedures, which can be scaling a routine planning, periodontal surgery, tooth extractions, and things like that, we need to closely monitor patients and make sure that we report and work on any potential complications very early in combination with the medical and the dental team. Okay? You have to become an expert in optimizing your daily oral hygiene. So at least brush your your teeth twice daily if you can three times a day even better.

The most important time to brush your teeth is a knife. Okay? When I tell my patients that are susceptible to com disease, there's little tricks like this. You never go to bed without properly brushing your teeth. And my advice is that you brush your teeth right after dinner Because if you need it when you are, you know, watching TV and then you're sort of, like, falling asleep and then you remember, you haven't brushed your teeth and you're gonna go, like, half sleep and try to brush them.

That's not gonna work. You're gonna be so tired. The last thing you you wanna do, your body wants to do is brush your teeth. You have to pay a lot of attention to this. So my advice is right after dinner, the first thing you're gonna do is properly brought your kid at night is the most important time of the night, why of the day.

Why? Because during the night, your saliva levels are gonna be reduced and the bacteria love that. The saliva washes of the bacteria. When you go to sleep, your saliva level decreases and bacteria go to parry on your teeth and on your gums. They love that.

That's the reason why when you wake up, you notice your mouth is dry. Why? Because you were not producing any salayuan. So then you know that you're not telling you stories. This is real real things, and that's why you wake up with the bad a breath because the bacteria took over and party all night long.

Okay? So that's why you have to be very very very careful and know that you never go to bed without properly brushing your teeth. And what what does that mean? Well, you have to floss first. Flossing is extremely important.

Flossing is very important. Flossing is even more important than brushing your teeth. So flossing is so important. So you're gonna tell me I hate flossing. Okay?

I don't deal with that, you know, thread very well and it gets caught in some places and I hate it. I get it. It's not easy, but you have to do it. You have to become very good at flossing. Okay?

What I will recommend is that if you have problems with your hand externally, reducing the floss, just get Losser peaks, they're excellent, they're so inexpensive, and you can get really good at using them. Once you floss, I will strongly recommend you get a water irrigator. They're commonly known as a brand called Waterpik, but it doesn't have to be the brand Waterpik. It can be any brand. They're now very affordable.

You can get a twenty dollar version on Amazon. And why so important to floss first because you're gonna get deep debris out? And why is it going to be so important to water irrigate

this area? Because the water irrigation is gonna help you out flush the little debris. So it's gonna be very important to do that.
So the water irrigation is gonna be essential as part of your care. Okay? And then after the water irrigation, you're gonna be brushing your teeth. And if you wanna become very good at this, get a power toothbrush because the power toothbrush is gonna do the job for you. You don't have to worry about moving up and down, on left and right.
You don't have to worry about that. And it doesn't have to be very expensive toothbrush because you can get a twenty hundred dollar version that you don't need. You can get a thirty dollar version of Walmart if you want, and you just put it in there. And because it's acting on itself, you just have to go on that to and count one, two, three, and do a little jump and go to the next area. One, two, three, and do a little bit jump and go to the area.
So it's doing the the job for you. You just have to make sure you learn very well how to position by your first floss, then you water irrigation, then you go ahead and brush your teeth with a good toothpaste, hopefully a flouridated toothpaste. And if there's questions about fluoride, I'll be happy to answer those questions because fluoride as a kind of a bad rep, we can talk about that. But that's gonna be essential for your optimization. And of course, you spend like thirty minutes cleaning your teeth.
Once you're done, don't go snacking because you got hungry, after you wanna be go to bed or because you watch television. No. You spend too much time, there was so much time and effort, so no more snacking before bedtime or worldwide, you watch television because you're gonna have to start over. So once you have dinner, the first thing you do before anything else is where you properly brush your teeth because you never go to bed without properly brushing your teeth and then you stop eating because there was too much work to to to go waste. You can be.
Right? Okay? Alright. You can use my watch too. If you do, what we recommend is you do alcohol free rinses because the alcohol or the burn, as you know, it can be affecting your mucosal tissue.
Your mucosal tissue is so friable because you don't have the immune cells to protect you. So very gentle mouthwashes and fluoride products are gonna be very important for your mouthwash. And I don't put so much importance on the mouthwash, to be honest. Because we don't have the it's not a panacea. It helps, but it's not a panacea.
For me, the most important one is the floss. Irrigation and the toothbrushing. Yeah. You can do the mouthwash. In the in the water the the mouthwash, you can do if you like.
But make sure it's not those burn is essential type of products, just very gentle. Okay? But you can also use salt water and it has a good activity as well. So you don't have to do commercial mouthwashes. Companies are not gonna like me.
We're saying this, but they're saying this to suggest then. And of course, the most important thing as well when you snack if you to go a snack, you know, a sugary diet. That's what

bacteria are gonna love and they love and thrive on that. That's why you get d k. Right? So no sugary intake. If you happen to have a little sweet tooth here and there, which I do too, make sure you're brushing your teeth right after or having a good irrigator just to reset the bacteria that are gonna be forming in there. But you never eat sugar and don't brush your teeth for a long time because that puts you at a higher risk for gum disease and for caries or tooth decay risk. Okay? And of course, you've heard this before.

Smoking is my worst enemy, what I do. It's really hard to treat these situations in smoking patients, of course. Smoking is like putting gas on a burning fire when you have these diseases. Because it accelerates everything. The nicotine gets into the tissues, constricts the blood vessels, it just causes hay hay hay haydock.

And then people think vaping is gonna be safer to some extent. That's not the case. They being is higher nicotine content. So it's actually the worst substance multiply it by ten times. So no tobacco, no vaping, there's no point.

Even if you're primary immunoficiency patient, even more point not to do it. Okay? Wait to seek care. When you have new ulcers, when you have persistent bleeding, you're trying your best. This is not working.

That's when you seek help. That's why you what I what I was telling you, look at the mirror, take a look at your gums, learn to determine when they're bleeding because they're not gonna be painful. Right? Remember? So take a look at them.

Make sure that everything looks fine. But if you notice a little bit of bleeding, you go to length, it's been very proactive. If you have an ulcer in your gum tissue in your lips. In your lips, if it's more like herpes and it's more like seasonal and, you know, you can control it, it's not a big deal. But if you have your ulcers in your gums, in your mouth, in the roof of your mouth, in your cheek, inside your cheeks, you should sit very smoothly because they can be prone to to get more complicated and have complications after them.

So be very proactive. Okay? So this is very collaborative care. You have to have the dentists, the periodontists, the immunologists, they're working as a team. They're gonna be sharing information.

Everything is gonna be coordinated to your benefit. So make sure that you work with a great collaborative current team for this. And, okay, we can approach it to the end, so these are the key take away. So as we have learned, primarily the efficiencies definitely increase all of those never really they're not going to make you more vulnerable to disease. Not the end of the world, we can treat them, but you have to be more proactive in your dental treatment. Prevention is going to be essential in these situations. Brickland Monitoring can be very powerful. Get your dental cleaning every three months if you're having these conditions. It's so important to get your cleaning every three months when you're susceptible to gum disease. When I tell my patients, I can do the surgeries, I can do the treatments, it's on them to maintain the results.

I tell them now we have, you know, we married. Right? And then we don't have the right for divorce. You cannot divorce me. I cannot divorce you because your condition.
We don't get to cure your condition. We get to control your condition. Just like diabetes. We get to control diabetes. We don't get to cure diabetes.
We get to control illnesses. We don't get to cure illnesses. So your constant cleanings, constant monitoring is gonna be essential. Okay? With that, I want to thank for the opportunity, and I'm really looking forward to your questions.

Emma Mertens: Alright. Thank you so much, Dr. Arce. That was incredible. I learned so much.
I know our audience members learned so much, and that was just an excellent presentation. So thank you so much.

Dr. Arce: Thank you.

Emma Mertens: Alright. I'm gonna pull my slides up again real quick. There we go. Alright, everybody. So I know we have a lot of great questions already in the box.
So we are gonna go ahead and get into that Q and A just to a quick reminder, we have some ground rules for Q and A which have been shared in the chat that we ask you to respect those ground rules and we're going to go ahead and get started with Q and A. All right, Dr. Arce. I think you touched on this here at the end, but just to really drill the point home for an individual with primary immunodeficiency, how often should they go for their dental checkups as compared to the regular schedule for a different individual?

Dr. Arce: I would suggest every three months. Usually, what we tell patients, you know, patients, immunopurfishing patients, that it's good to see the dentist every six months. Mhmm. But with PI patients, what I would recommend is every three months just to monitor. But PI patients need to become very good at also self monitoring because remember very silent.
So they have to become very good at looking at their gum tissues, get like a mirror with light, you know, so they can see very well and monitor their gum tissues and any early lesion that can happen. But I would suggest every three months will be better.

Emma Mertens: Sure. Thank you. Alright. That's question. Have you treated any individuals with PI who have successfully maintained their teeth into the later years of life?
And if so, can you give some examples of sort of what that trajectory looked like and how they were able to have success?

Dr. Arce: Yes, so the most common situations that we treat patients are the innate immunity type of patients that have neutrophil dysfunctions. And these patients are treated in conjunction with the pediatricians because they also have to have the management with

the pediatrician. And it's just constant monitoring, constant cleaning, but sometimes, something have to be distracted because the diseases can be advanced. And we've had patients in which we follow them for the rest of their life. As long as we can control, like, with good medical management, they can be affecting their primary and tissue, but not so much in the permanent and tissue because now we have better ways to do constant monitoring.
When it comes to the nineteen new patients, I haven't had the chance to treat a patient with the IRT therapy yet.

Emma Mertens: Thank you. Alright. So our community, as you can imagine, experiences a lot of hurdles dealing with insurance companies oftentimes. And this individual asks, do you have any tips for getting medical insurers to cover period, dental, infections under their medical plans for individuals with PI. With the dental issues and treatment, which stem from the immunodeficiency, how can we make that argument in order to get those conditions covered.
Is that a battle that we can win?

Dr. Arce: Oh, my gosh. Tough question. For whatever reason, we have a medical insurance industry and we have a dental insurance dentistry as if they had to be separated for whatever reason. Don't ask me why I I don't get it. It should be only one insurance to treat because it's not separated from the body.
But just to answer your question, there are some situations in which you can appeal for something called medical necessity treatments. So the medical necessity has to be very well documented. And usually, I've seen better results when you go go through the hospital dentistry route because then the hospital based dentistry is gonna have better tools to build medical insurance. So for example, for me, bible practice, building medical insurance is extremely hard. And very challenging.
So in those situations in which you really need help from the medical insurance, my suggestion will be I reach out to your hospital, local hospital that has a dental ward, like hospital dentistry, and they can help out work with the with the physicians on the medical necessary part and documentation to treat these conditions. And you're completely right. I don't I don't get why that is the case.

Emma Mertens: Thank you so much. So that's super helpful. Alright. So I know you talked a little bit about electric toothbrushes in your presentation. So for some of you already has fragile gums, and inflammation.
Can electric toothbrushes exacerbate those or make those conditions worse? Would you still recommend that for someone with a preexisting inflammation?

Dr. Arce: A hundred percent. It's like everything else. You have to learn how to use it. So The first thing you're gonna do is bring your power to brush to the dentist, and the dentist is gonna train you on how to properly use it. Of course, if you go and use it in an incorrect manner and you put in your gum tissue is state of your tooth, that's gonna create problems. It's gonna create a traumatic ulcer. And it's almost similar to what the infectious ulcer is gonna be like. Right? So it's a matter of training. Right?
So like everything else, an instrument that is used in an improper manner is gonna cause problems. An instrument that is gonna be used in a proper manner is gonna do wonders. But make sure you get trained on it. Many times, we tell patients, yeah, go up and buy a power to brush and do it your self and you're trying to learn from YouTube videos and all that. Now bring your toothbrush to your dentist or pre dentist and they're gonna explain to you how to properly use it.
They're gonna coach you use and they're gonna supervise that you're using it well And if this is gonna be a new theme, my recommendation is that you use it for a week and come back to the dentist to make sure that you're not having any local damage.

Emma Mertens: That is a great suggestion. Thank you. Alright. Scrolling through these. Alright.
So there is a myth in the immunocompromised community that root canals are dangerous or not an option for someone with something like primary immunodeficiency. Is that true?

Dr. Arce: So to be honest, I haven't reviewed the evidence on data specific topic. I can definitely get back to you to make sure we, you know, make sure we inform our patients regarding these situations. But overall, the issue with the root canals that they have bad rep, it's because they they most people claim that it's impossible to clean the tooth from the inside. And we have years, years of ages suggesting that that is not the case. We are able to completely replicate infections from the root canal of the teeth of people having PK. But what is a regular problem? That root canal therapy is a very precise procedure. And it's not for everybody to do. I haven't done a root canal in thirty years. You don't want me to do a root canal on you.
Right? So there's an mental specialist specialty called endodontists. So your endodontist is gonna be very well trained in using microscopes to do your root canal, and they have the best technology to do your root canal. So properly done root canal is very efficient and very safe way to control for local infection inside the tooth. So I will venture to say that even in primary immunodeficiency patients, that will be the case.
The bad rap comes when the root canal is not done efficiently because many times I hate to say it, some dentists think they're doing root canal the proper way, but they don't find all the canals Mhmm. Because they're microscopic and they don't have the technology. So they're gonna leave some infection in there and then people are gonna claim it. They're

impossible to clean. Right?
Especially bio energetic and holistic dentists. I'm I don't wanna you know, don't take this the one way I'm not trying to back talk. About people and their beliefs. But we have to make sure we understand the issue as it is. It's a very complex procedure that has to be properly done to be successful.
But root and all, therapy works when properly done. But I don't think primary immunodeficiency patients will be a higher selectability of failure, but just to be responsible, I will search that information.

Emma Mertens: Awesome. Thank you. Alright. We have a lot of folks also asking about or mentioning that they experience dry mouth. Do you know if there's any sort of link between immune dysregulation and dry mouth?

Dr. Arce: Yes. So for example, there isn't many conditions. I couldn't include all of them. Right? But there's some immunocompromised patients with chogren syndrome, for example, are adding new conditions in which their glands are going to be destroyed.
So similarly, if you have immune dysfunction, your saliva can be affected. And definitely, as we were discussing during the presentation, saliva is essential to maintain the health of the mouth. So if you're finding yourself with a dry mouth due to medications or due to your condition, seek help and monitor constant monitoring because you are even more prone to have PK uncomped disease. So it's very important to be cognizant of the problem of saliva production. If you feel that you have a dry mouth, you even wanna be monitoring more frequently than the three months, I would dare to say more than a half to two months on the list just to make sure.
When these patients have children's syndrome and they complete lack of saliva production, they have they get so much decay. It's so difficult to treat. But we do have some good fluoride systems that rest occurs in very early stages, but these patients have have to be on constant, frequent treatment and monitoring and observation.

Emma Mertens: Thank you. Alright. So this individual is asking, is periodontal disease considered a warning sign of primary immune deficiency. They shared that their dentists had always assumed that they just were practicing poor oral hygiene, but really what was the cause of the underlying issues was the primary immunodeficiency. Would you consider that a warning sign?

Dr. Arce: A hundred percent. So this is something that is so important to do is that there are some assume things that will happen in a normal way Mhmm. You always have to investigate. So I would never assume out of my patient, their brush thirty. That's the reason why they're having this.
No. There's always some signs that this doesn't look right, and especially if you pay

attention to the type of information. I can guarantee you the type of information that you get in primary immunodeficiency. It's not the same as the type of information or swelling you get to normal monthly guidance. It looks different.

Emma Mertens: Mhmm.

Dr. Arce: So that's why it's so important to have good detail dentists that are gonna be taking a look at this looks of this doesn't look normal. For example, for the kids when their babies, the first sign for this type of condition is the crush. Mhmm. Right? The gay candy diet is.
So that's not normal. A baby shouldn't be having this. So that's an immediate sign that we have to go to the physician and get some good labs to make sure, you know, to count on neutrophils and nucleosides and make sure we're not having any primary deficiency. But a hundred percent agree comp disease is an early sign for primary immuno artificial conditions.

Emma Mertens: Thank you so much. I feel like that's probably validating for a lot of people too, so thank you for sharing that. Alright. We also have a number of folks asking about oral health probiotics and then also probiotic lozenges. Is that something that you recommend for your patients?

Dr. Arce: So unfortunately, they're kind of new and we have so many products in the market. So I have to say last time I checked the evidence is not super strong. Okay? So I cannot comment here and say that you had used them. However, conceptually speaking, they can be beneficial.
But my suggestion here is that if you decide to try, make sure you try with supervision and with your dentist because then you're monitoring the other things are not gonna be happening. But I cannot tell you that that really is gonna be something really, really good because we don't have the data to suggest so. Sure. But definitely, as we develop with science and and and scientific tools and probiotic development, they do they will have a place. They will have a a better place in the future.
If they're not have a place already, depending on the situations, there's nothing that I can recommend out of my, you know, my armamentarium of things that I treat patients with. Mhmm. But they will definitely have a place in the future.

Emma Mertens: Alright. Thank you. All right. For this next section, we're getting a lot of questions about antibiotics. So I'm going to ask about some regular dental procedures, I guess, in you can let me know, are these something that someone with a PI would get antibiotics for?

So lots of people get their wisdom teeth removed. Is that something that you would recommend antibiotics for?

Dr. Arce: Yes. And the reason for the antibiotics with resistant tip removal is that it tends to be a very basic procedure. And it carries opening of the arms and removal of the bones, so it's a very intense surgery. So I do them frequently in my practice, and I prefer even in immunoproficient patients to even treat them with antibiotics in use cases.

Emma Mertens: Howard Bauchner: Alright. What about someone with PI who's just going in for their regular cleaning? Would you suggest antibiotics?

Dr. Arce: Debatable. So sometimes if if the cleaning is not gonna be intensive, we're not gonna have a lot of bleeding we can try not to do it because remember the problem with antibiotics is that they're also going to be killing your good bacteria and we want to have good bacteria to recover. But sometimes when we're treating patients for the first time, the immunologist is the one who recommends it. We have to follow their instructions. So it has to be also a group decision as well.
I wouldn't assume that it will be an automatic prophylactic antibody therapy for all patients. Mhmm. So it can be a little bit debatable. It's on a per case, like, kind of per basis needed. That is it.

Emma Mertens: Sure. But definitely worth having a discussion with your dentist before you before you go in for that cleaning?

Dr. Arce: Correct.

Emma Mertens: Alright. So what about for some of the more common dental work that people get done like fillings or crowns?

Dr. Arce: I would say no needed Okay. For antibiotics because those procedures should be far away from the gums. The gums are the bleeding bloodiest, you know, tissues in the mouth Mhmm. Teeth on the contrary, the the blood in the teeth is very deep. If you have blood at tooth bleeding, then you're in trouble.
You're in the en route canal. So feelings, things like that, you shouldn't be needing antibiotics. Okay?

Emma Mertens: Good to know. Alright. And then my last antibiotic related question for now, if someone has a tooth abscess, what antibiotic do you recommend, and then what else what immediate action can they take to address the abscess?

Dr. Arce: Yeah. So abscesses are very important. I wish I would have included some more information about abscesses, so I'm very happy to answer these questions. The problem with abscesses, is that when they collect, they accelerate the infection so much that they

can knock out a tooth immediately. It's crazy.
So I definitely recommend localized periodontal abscesses to use anti antibiotics. As part of the treatment, your pareont is well sure to it. Now there's some abscesses that are not periodontal, they're gingival, and they're very localized. Sometimes they happen because there's food impaction. Mhmm.
The typical situation is that you eat popcorn, a little cannot get stuck in there and you couldn't clean it and then you get a little abscessing there. You should be you shouldn't be getting antibiotics for those because those are self limiting and they're not a big deal. But if you get a bigger abscess, you have to go to dentist. They're gonna take a radiograph. We have to see the extent of the destruction with the radiograph and the debridement together with antibiotics is gonna be very important.
Howard Bauchner:

Emma Mertens: Sure, sure. Thank you. Alright. I wanna be mindful of your time, Dr. Arce, that we're gonna just do a couple more questions and we're gonna close out for the evening.
But we have a ton of folks in the comments who are mentioning that they have issues with gum recession. So do you – are you aware of a connection between immune dysregulation and gum recession? Is that something that you see or that you've heard about in patients who are immunocompromised?

Dr. Arce: No. I don't think there's evidence to suggest that they're related, but I'll tell you what happens with recession. Patients. So you can either have recessions following bone loss or gum loss. So patients that have had gum disease will tend to have teeth, longer teeth because they've lost a lot of bone.
And with that, the gum tissue has follow the bone. So we jokingly say in dentistry, you know, the bone sets the tone. The tissue is the tissue. So when you say the bone sets the tongue is that the gum tissue will always follow what the bone is. Now, you may have not had any periodontal disease in the past, but you're trying to have recession.
That happens where your immuno efficient or profession. And usually it's related to patients that had ortho therapy when they were younger. And what happened is that we they expanded the teeth because they wanted to accommodate the teeth with your ortho braces. And expanded the teeth so much that they thin out the bone in that area to the point that it gets soaking out, that it resorts a little bit, and the gum tissue follows. So usually, when you start having recession in the absence of gum disease, you have to question yourself, you know, was this because my orthotherapy and then you have to go to a periodontist and see what kind of options we have to address those.
But I think that primary immunodeficiencies are more affecting towards the infectious,

immune, swelling process. Mhmm. When it comes to recession as well, there's good plaque control and all that. Is not gonna get any worse, and it clearly is treatable.

Emma Mertens: Okay. Okay. That's very good to know. Thank you. Alright.
Well, I think this is going to be our last question, but I just wanted to share. We have we have so many questions in the box. I you can't even scroll through a while, but a lot of it is also supportive comments from our audience thanking you so much for this wonderful presentation tonight and saying that they wish they could have you as their as their dentists. So while we know that's not not everyone's in Texas, so it's not possible for everyone here, what sort of advice would you give to folks who are looking for a dentist who they're wanting someone who's knowledgeable on primary immune deficiency or they have experience treating patients with immune dysfunction. What advice would you give?

Dr. Arce: Well, the first thing is to have an honest conversation. And of course, many times dentists get so much focus on their clinical training that they get a little bit uncomfortable with medical complex situations. Right? So it's very good to have an honest conversation with your dentist and say, hey, listen, I have this condition. This is what really you you also as a patient, you can allocate your dentist.
And these are the things that we have to take a would you be willing to work with me, or would you be feeling more comfortable if I go somebody else that you can refer me to. And I think an honest dentist will say, you know, yes or no. Mhmm. If they don't feel comfortable because they don't have either the knowledge or they equipment or the capacity to make sure they're doing these protocols for high disinfection of the areas and all that. Nothing wrong with saying, I think you're going to be very suited to all type of situations.
Okay? If that's the situation, I would recommend that people sick more like hospital based dentistry. Mhmm. There's something called GPRs. Those are general practice residencies in dentistry.
GPRs in in hospital based dentistry, they are experts in treating immunocompromised patients and medically compromised patients in a hospital setting. Sometimes hospitals have better ways to prepare for these type of situations.

Emma Mertens: Sure.

Dr. Arce: So if you haven't found a dentist that is comfortable with treating your diseases, then go to hospital based dentistry, university hospitals and all that. We'll have this always Google GPR. GPR. And they will have those programs that are you know, dentists undergoing a specialty training telemedically compromised patients, and you will be very good at those places.

Emma Mertens: Excellent. Thank you so much. I bet that is super helpful for a lot of our folks joining us night. So, thank you. Alright.
Well, we are going to go ahead and conclude our Q and A. So, Dr. Arce, thank you so much for answering everyone's questions. Thank you to our audience for submitting such thoughtful questions. I know you likely have a dinner you wanna get to or just you wanna get on with the rest of your evening, Dr.
Arceis. So if you if you are are going to be leaving us now, that is totally fine. For the rest of the folks joining us. We'll just close out with a couple of quick resources and upcoming events. But I just I cannot tell you how much we appreciate your time this evening.
This talk was incredible. There's no one else we would rather have had, you know, giving our first PI and dental webinar. So thank you so much.

Dr. Arce: That's so nice. Thank you so much. It was wonderful to be with you guys.

Emma Mertens: Thank you so much. Alright. Have a great rest of your night. Thank you.

Dr. Arce: Thank you.

Emma Mertens: Alright. So to our audience members, we're just gonna share a couple of quick resources. Before we close out, I wanna be mindful of the time and let everyone get back to their evening. Primary immune dot org is your go to website for additional resources, upcoming events, and more. All materials are free to access, print, or have mailed directly to your home.
And if we didn't get to your question during the program, you can contact our board certified patient navigator through our Ask IDF program. She will personally connect with you to tackle your question and direct you to appropriate resources. You can even take the immune deficiency foundation on the road with our engaging podcast series. You can find programs like bold conversations, undiagnosed and chronic twenties. Simply search for the immune deficiency foundation podcast wherever you get your podcast.
And we also have a YouTube channel where you can find recordings from all digital education initiatives, and tonight's program will be available in the new year. Find a safe and supportive environment to link up with others impacted by PI through our GetConnected Group. These groups are free, virtual, volunteer led opportunities to connect with others with PI all over the US. We offer location based groups, so in your city or state, diagnosis specific groups and nationwide groups, and because we meet virtually, you can really join any group that works for you. All upcoming meetings are listed on our calendar of events, and we'll share the link to that in the chat right now.
We also offer facilitated support groups for young adults. We have ones for parents, and caregivers. We have one for spouses and partners. And then we also offer a peer support group program if you're more comfortable with something that's one on one. If you're

feeling the weight of isolation this holiday season, please know that you're not alone. Our GetConnected Group will be hosting a virtual holiday gathering on December 25th, offering a place for genuine connection and shared understanding. You're welcome to come as you are, show up just as you are, and if it's in your PJs at home, that's totally fine. Whether you are choosing to celebrate, you're just using the day for rest, or you just wanna connect with others from the comfort of your home. We're happy to have you join us. And if you visit the link in the chat, you can go ahead and register for that gathering.
And tonight is our final program for twenty twenty five, but we do hope to see you back in the New Year for more great programming. In the meantime, registration is now open for our twenty twenty six National Conference taking place next June in San Antonio, Texas. Scholarships are available and applications are open through March thirty one, twenty twenty six. And in case you missed it, the Immune Deficiency Foundation is now part of Walmart's Sparkgood Roundup campaign, where customers can round up their purchases to the nearest dollar and donate the change to their favorite charity. All you have to do is visit walmart dot com slash sparkgood, search for the Immune Deficiency Foundation and sign into your Walmart out.
From there, you can donate spare change by automatically running up your orders to the nearest dollar at checkout. Alright. We are now going to launch our closing poll Again, we're going to give about thirty seconds for everyone to answer. And our closing poll tonight asks, after tonight's program, please rank your level of awareness of how immune dysregulation impacts dental health. Alright.
Awesome. Well, thank you, everyone, for your responses. I am so happy to see that everybody learned something tonight, and I know I did, so thank you so much everyone for your feedback. Alright. And now we're going to invite everyone to share one new thing that they learned from tonight's program.
So if you will, go ahead and we're gonna use the q and a box for that to go ahead if you wanna type in one new thing you learned or something you liked about tonight's program. Put that in the q and a box and we'll take a few moments to read some out loud, and we we really appreciate this feedback from you guys.

Dr. Arce: Alright.

Emma Mertens: Just lots of folks expressing appreciation. We appreciate you as well for joining tonight. Someone mentioned that they need to get a water flosser. That was definitely a good one to learn about. Peridontal disease isn't curable, but needs careful management, definitely a key takeaway.
I thought it was very helpful too that he shared that folks who might be immunocompromised could go every three months instead of every six months. I thought that was a great takeaway. Someone put that the bacteria are having a party in my mouth

while I sleep. That was also a nice visual from tonight's program. Some folks saying that they're oh, the flossing is even more important brushing.
That was definitely eye opening for me. Folks appreciated the information about hospital dentistry. Lots of people talking about that. Just the people who are at their eyes were open to the role that the immune system plays even in other parts of the body, better understanding of dry mouth and bacteria. So this is great.
It looks like people learned a lot tonight, and I did as well, so thanks everyone for sharing. For what she took away from tonight's program. That's awesome. Alright. Before we go, we want to give a heartfelt thank you to our amazing volunteers and supporters who make programs like this possible.
If tonight's presentation resonated with you, which we hope it did, we hope you'll consider supporting future programming here at the immune deficiency foundation. Your donation at any level helps us continue building community and delivering meaningful content like tonight's program. Thank you so much for being here. All right. A big thank you again to Dr. Arce for joining us this evening. We so appreciate you leading this important discussion tonight. He and I and our our meeting meetings and everything, I really emphasize that this was a highly requested topic from our community. And we really consider an honor of being able to host him here as our first clinician to cover it here through the immune deficiency foundation. So thank you so much, Dr.
Arce. I am going to leave the Zoom platform up for a few minutes just in case anyone wants to check out the links that we shared in the chat. But thank you everyone for joining us tonight. And on behalf of the immune deficiency foundation, we We wish you a happy and healthy holiday season. Thank you so much for being a part of our community and take care.