Introduction to Doctor Talks and Oral Systemic Connections

There's a lot of debate in the in the field about whether or not they're carcinogenic. Japan recognizes that as such. The US isn't necessarily there yet, but still, it's not.

It's not good and healthy. So really there's been, you know, any negative most of the negative information that you see around ozone is typically that produced from corrupted discharge method with air.

And that's not to be confused with corona discharge using oxygen gas like Doctor Larkham is referring to. That's fine. That's pure. You don't have the nitrogen oxides or the nitrous nitrogen byproducts, but it is a very low purity.

Welcome to Doctor Talks, the podcast where every episode leads to a healthier you. Join us as we navigate the world of optimal health, uncovering groundbreaking strategies to conquer chronic disease.

In each episode, we'll bring you the latest insights from leading health experts, medical innovators, and wellness warriors. If you're seeking to transform your health journey, or if you're looking for answers to burning questions.

You've come to the right place. Get ready to unlock the secrets of lifelong health and vitality. This is Doctor Talks, real talk from real doctors on the issues that matter to you most.

Welcome to oral systemic Connections. I'm Doctor Tom Larkin, where I introduce you to some amazing individuals today I'm going to introduce you to someone who is the hardest working individual that I think I know right now.

He is the CEO of bio. Sure, North America and I'm adding him to the stage.

How the Hosts Met Through Ozone Technology

Darren Simmons, welcome to Oral Systemic Connections. Thank you Doctor Larkins. Good to be here with you guys. Yeah. So let me give you my backstory on ozone because there's a journey how we met.

And it was just an all a process and all was back to Covid that wonderful period of time. That was kind of strange. April 2020 I had a meeting was going to be my first live training meeting.

It got canceled. Okay. And so what happened was I just instinctively knew when the issue of aerosols came up. You know, I've talked about aerosols for a long time because I trained a lot of team members on how to use a microscope, terrified to look at bacteria.

Right. And I knew inherently that aerosols, if you have water in your bottles, the reason why when we would train people and I would test the hygienist, their their microbiome was always terrible.

Some were like awful because they were spraying all that crap in their face. So to me, it was super logical that one of the solutions at the Covid period and all of a sudden their cells were more dangerous, was ozone, water.

And I knew that because of Doctor Rachel Riley, who you've met, she's a holistic Dennis and I kind of knew peripherally. So what am I? Do? I go to the internet and I start to do my homework and start to search.

What did I find? Not much, you kind of know. So I the websites were pretty sketchy, you know, there were you know, just dentistry wasn't very well represented, you know, 4 or 5 years ago as far as like ozone.

The other thing too is that ozone gas and ozone water were kind of coupled together. And I just wanted the water. Right. So I went and bought ozone generator at home.

Oxygen tank learned how to make it. I just went through the whole process and I've got one point. I don't know if I've told you this story, but in the in the spirit of transparency and, you know, that was kind of a strange, you know, there was a strange period where an unknown and I would take the mail that would come and I would put it in a vinyl bag, and I would fill it full of ozone gas for about ten minutes.

And then, then I felt like my my mail was safe. Now, that was a very short period of time. Okay, but but I had the best smelling mail of all time and it was very clean.

Okay, so so everything kind of progressed and I deployed it in some offices here in Lexington. And then there were individuals at my meeting from Austria that canceled, and they reached back out to me and said, Doctor Larkin, can you would you do some training in Australia virtually?

And I said, yeah, you know, I think this whole thing of having a learning platform is going to be part of the city in the future. So I took some time and developed this learning platform, and I'm training dentists in like Australia that fall.

And one of the things that I found so obviously I'm wanting to know their protocols, whatever. And they're using like ozone water a lot aqueous ozone except they got it.

The tap. And I was like, you know, and so, you know, here we're making it through this really arduous process of bubbling it through a, like an aquarium stone.

It took a lot of time. It wasn't really powerful, you know, and their capacity limits. Right. So I thought this is really interesting. So I started you know, I've learned a lot in Australia and that was an area.

So the name of the company was biosphere. And I reached out to somehow to you. So so tell me how you recollect how we met. Because I was pretty persistent.

You're very persistent. And I'd had a couple of inquiries, and it was in the height of Covid when a lot of things were happening. It was a little bit of an unusual time, especially around communications and engaging folks.

And there was yeah, you had reached out to us, I think, a couple of times. And and we're really anxious to get in touch with us. And it actually routed through our, our headquarters in Taiwan.

It came back to me and I reached out to you. And yeah, it was, as I recall, is an extremely exciting conversation. Very, you know, a lot of common ground and interest and excitement around the technology and the science.

And, you know, the the rest has been history. We've had a nice five year run now of, working together and bringing more people into the adoption, which is really our mission is to drive the adoption of ozone as a standard for disinfection.

And antiseptic is wow, I five years, I mean, time, time for to hopefully shave it. But boy, that's for sure. Okay, so before we get into that, can you share with my audience a little bit about your career at Coca Cola?

Okay, so you're you're an engineer, you like, you got some background and talk about that transition. You had reached a point and something came along or this came along and it it made sense to you.

Can you kind of tell my audience a little bit about that? Sure. I'm a mechanical engineer by training the relevance to this audience and this group is my father and mother are both in the medical profession.

My dad's a dentist, mother's and a registered nurse. My brother's a dentist. They both practice and are a successful implant dentist did a lot of surgery, so I grew up in the medical field and specifically around dentistry, so I'm very familiar with it.

But I broke ranks and went engineering and been at it for about 30 years, a lot around development, innovation, core and applied research. So I'm used to looking 10 to 15 years out at new technologies and figuring out how to

bring them in to immediate application and value to their customers or end users of products.

I spent most of my career in the beverage industry.

Engineering Background and Coca-Cola Innovation

I did work for Coca-Cola for half of that career, leading global research, development and innovation for cold drink equipment. What was a little bit unusual about it, and what most people don't know about Coke, is that they do a lot around environmental sustainability, whether it's water, packaging, ingredients, etc.

and specifically around appliances or the cold drink equipment. Coke's the largest and user of refrigerated equipment in the world. We bought more equipment in a year than anybody else, over a million and a half pieces of equipment on an annual basis.

So there's a lot of pressure on Coke to do well with the environment by reducing our carbon footprint. So I was charged with leading a, technical organization for the research, development and commercialization of alternative refrigerants that were environmentally friendly and natural, as well as reducing energy consumption, etc..

And so the results of that work over a ten year period led to the equivalent of taking nearly a million cars off the road every year in terms of the positive impact that we've had in the environment as a result of that work.

And that's an ongoing that's something that pays forward. So I've worked for other companies doing a lot around new product development and innovation.

And then 19 or 2019, I decided it was time to either scratch that entrepreneurial itch and do it on my own or or continue working for corporate America.

And so I was actually going into, doing more beverage equipment with a very close and dear friend of mine who has brought an extensive manufacturing capacity.

And two days before we were set to sign an agreement, he said, you know, there's a there's a company I've worked with and invested in over the years, and I just went through a business review and you need to come meet them.

And so I was introduced to Gavin Shew, who's the managing director of these groups globally. His father founded the company, and 15 minutes into it, I forgot everything I ever knew about beverage equipment and wanted to learn everything I didn't know about ozone.

So you'll find, as we as we talk more during this, session, that the technology is very special and unique. And at least in my experience, easily one of the top 2 or 3 technologies really revolutionized revolutionary and groundbreaking technologies that I've ever experienced or been a part of.

So we committed to commercializing in North America with the mission of making ozone the standard of disinfection and antiseptics. So we take a very long term sustainable view to commercializing this product.

We didn't capitalize on the fear and concern around the pandemic. We stayed very true to our, our core values and were quite happy with the progress we're making.

So, so, so the title of this podcast, is Is It Time for ozone? Oh, and I have breaking news that I need to tell you about. So as of March 1st, Shake Shack puts a name on steak.

So the hamburger place, Shake Shack. Steak shack is is frying their French fries and beef tallow as of March 1st. Okay, so there's change in the wind, because when I was doing my research on ozone, I was trying to figure out why it's used all over the world, but not here.

And I had some suspicions about, you know, suppression of technology or whatever. And, and so yeah, it's used. So it was used a lot in Italy and I, you know, and you, you're familiar with how it's used globally.

And I couldn't understand it because it's such a logical, common sense thing. You know, I consider it I use the term holistic and then it's non-chemical.

It's very effective. We're going to go into the science in just a second.

Ozone Science: Concentration, Half-Life, and Water Temperature

And I'm just going to kind of bring it, bring you through. Let me put this slide up here. First I'm going to have you explain a little bit of the science.

So what I, what I want you to explain to the audience the three most basic things are parts per million. And that's concentration. And then the concept of half life.

So when, when aqueous ozone water is made it it's wanting to degrade almost immediately. It's O3 and it wants to go back to 202. And then the third thing I want you to comment on is water temperature.

Water temperature has an effect on half life. So what this means in the dental office, and this was all stuff that I was trying to put together, you know, it was very difficult to put together was we want to put it in the hygiene bottles.

Okay. So how long does it have? Is it effectiveness. Correct. And the factor of that is parts per million temperature of the water or whatever. So can you kind of walk through that for me and kind of explain that, that whole thing. Sure.

So just for, for the, the folks that are tuned into the science ozone, just simply a tri atomic molecule of oxygen. We have two oxygen atoms with the strong double bond, a third atom with the weak single bond.

This gives the the molecule a electrical charge. And for the layperson, we like to say that this molecule of oxygen electrocute bacteria and viruses when it comes into contact with them.

Other stuff like chemicals, yeast, other, other, you know, exact components or compounds that can be oxidized. But the main thing is it electrocute. So this is an electrical process that uses to kill bacteria and destroy or inactivate viruses.

It's very reactive, as Tom mentioned, which means it has a half life. It'll react with itself with other ozone molecules and quickly decompose to oxygen molecules.

So the great thing about it is it doesn't leave a harmful residue behind. There is no chemical residue or anything remaining after it's been used, other than the dead stuff that it killed.

The dead matter. But the downside is it has a half life, so you can't bottle and package ozone and expect to ship it across the country. And to have somebody that can, you know, let it sit on the shelf for three months and use it, you have to be able to make it on the spot and use it.

And so that half life we refer to is around 25 minutes at room temperature. So this means that if you start with a concentration of ten parts per million within 25 minutes, it will reduce to five parts per million, then again to two and a half, and then again to one and a quarter, and so on.

So you really want to use it within. If you start with ten parts per million, million, you really want to use it within an hour and a half or so for it to be effective.

Okay. So in so in the dental hygiene, you were talking about changing the bottles a couple of times and before noon it happened, you know, two times in the morning.

So that ten parts per million is really important because you're CD2, which we're going to show in a minute. You know, I couldn't make ten parts per million manually.

Okay? You know, there was just no way to approach that. And that's why this, you know, your process is, is revolutionary and that it can get to that concentration.

Hydrate it, start the day, fill the bottles. The other thing I recommend to just as a standard of care is for the doctors before they're doing a, you know, a major surgical procedure.

Or if you're doing something like that, start with a fresh bottle, right. If you're doing a surgery that might be 90 minutes or whatever, it's in the best interests of everybody.

But it's just a it's a perfect thing. Okay, now let's go to the science and the testing. And you're going to have to explain a little bit about how this gets this gets pretty deep, you know.

But you know, what you're going to explain is this works, right. Efficacy. It does. You know, the EPA says some very good guidelines around what's considered disinfection strength or even hospital grade disinfectant.

So we deal a lot with what we refer to as five and six large reductions, five log is simply 99.999% reduction of pathogens. Well, in order to demonstrate that to a level that you're really doesn't leave any remaining, you have to start out with a very high level of contamination in terms of testing.

So what we have here is a table, a summary table of testing that we've done with recognized independent world class third party organizations to to test the efficacy of this product.

In order to do so, we have to start with a fairly high level of contamination. This particular test was done in suspension and suspension. It wasn't embodied in a in a well-established or developed biofilm, but it's really intended to show what the kinetic reaction time is between ozone and these bugs.

So here we have a list of Staphylococcus aureus. Scary a coli E coli. As we know, salmonella, Pseudomonas aeruginosa, Candida albicans, MRSA or methicillin resistant staph aureus.

You can see here. Within 15 seconds, there was no detectable level of these pathogens once they were introduced to us. Out of 3.7 parts per million concentration, the unit that Tom referenced earlier that we'll show you shortly produces ten parts per million.

Testing Efficacy and Disinfection Standards

So it has three times that capacity or concentration of ozone, which is important when you want to think when you consider the working life that you want to have to be able to be effective with during your treatment or application, you'll see that there is one with E coli that is less than ten.

That just happened to be the test that they ran, that the type of test they're in, they would not they would not listed as not detected or a zero just simply less than ten to account for anything that they missed or weren't able to see or count.

But if you calculated it still puts it at over 99.99%. And we know that E coli is highly susceptible to ozone, it's very easy to kill it, though. So what if your role as a dental professional could go far beyond teeth?

What if you weren't just treating mouths but saving lives? Preventive dental care is evolving rapidly. The oral microbiome, salivary diagnostics, laser biofilm therapy.

They aren't just tools. They are the future of health care. They're turning hygienist and Dennis into leaders in disease prevention, in whole body wellness.

The question is, will you lead this change or be left behind? This is your moment. My name is doctor Tom Larkin, and as a founder of proactive Oral wellness, my mission is simple to equip you with the tools and processes to transform your practice and your patients lives.

That's why I'm inviting you to join me and some of the nation's leading experts in Lexington, Kentucky on April 26th for the future of Dental Hygiene.

Five The Blueprint. We will unpack the framework of the Wellness Center, practice new patient onboarding from a variety of really unique practitioners, specific preventive protocols, medical, dental, collaborative communication platforms.

I, I, and prevention and the revolutionary products that are bringing so much hope to this movement. And my podcast listeners, get an exclusive offer by entering promo code p o w that stands for proactive Oral wellness.

Every event that I've held so far has sold out over a month in advance, so reserve your spot early at Oral Systemic mastery.com. Hope to see you there.

Okay, so one of the things that in my learning process was there are different types of, you know, there's a corona discharge method ultraviolet. And then your technology, can you kind of walk through that.

Sure. If you look at the the pictures, the little images at the top, there are three main sources of, of of oxygen. In order to make ozone, you have to have a source of oxygen.

And so the three primary sources available to us are water, air and oxygen bottles really don't have oxygen bottles listed here, but it would fall in the middle column around corona discharge.

That's the type of system that doctor Markman was referencing earlier when he was making it at the at the onset of the pandemic. We generate ours from water.

And the reason this is important is that water is a fairly available and infinite source of oxygen, but you have to electrically split water molecules apart to liberate the oxygen and then re re reconstituted into ozone, and then we leave it dissolved in water.

So what what that was what that results in is a very high purity water, high concentration of ozone in the water. That can then be applied in a very stable manner.

It's just high purity, continuous, high purity. So we we have a continuous production that's available. It's consistent output under different directions, conditions.

You don't have to worry about trying to make it or bubble it and do these different manual processes. No nitrogen oxides. And that's something I really want to emphasize on this slide.

If we go to this middle column of corona discharge method with air and ultraviolet light method with air, air is 78% nitrogen.

Ozone Generation Methods and Purity Differences

So you either have to have a very sophisticated process of removing nitrogen from the air or contend with the fact that through the process of generating ozone, nitrogen oxide, NOx, like the pollution out of a combustion engines nitrous oxide and nitrous acid and nitric acid are produced during this process, which become corrosive.

They'll shift the parts of the water, and they're potentially carcinogenic. There's a lot of debate in the in the field about whether or not they're carcinogenic.

Japan recognizes that as such. The US isn't necessarily there yet, but still, it's not. It's not good and healthy. So

really there's been, you know, any negative most of the negative information that you see around ozone is typically that produced from corona discharge method with air.

And that's not to be confused with corona discharge using oxygen gas like Doctor Larkin was referring to. That's fine. That's pure. You don't have the nitrogen oxides or the nitrous nitrogen byproducts, but it is a very low purity.

So when you're saying who's having a hard time getting a high concentration of ozone into the water, that's because he was dealing with a very high ratio of oxygen to ozone.

That was that was limiting the dissolution as well as, just the simply the process of being able to dissolve it more effectively into water. So what we end up with, with our YAG technology is a very, very elegant solution for connecting the water supply to a piece of equipment, plugging it in, and having a high concentration of aqueous ozone available to you.

That is a very powerful disinfectant or antiseptic. Is available on demand and is free of any nitrogen byproducts, which would be a problem for you. Yeah.

So that was one of the things in my learning curve process was the corrosive ness of the carbon discharge. You know, you would get some rust and some stuff.

And that kind of went away when we switched over to the to the brochure stuff. Okay. So what I'm going to do now, I'm going to walk through your existing technology or existing models.

This is an inline. You've got three different I guess the difference in the numbers is the is the capacity. Right. So this is a smaller that you might put this.

And so that actually you just plug it in to the wall. There's a transformer or whatever. And this would be perfect for like a sink or something like that, where the water that would come out would be associated.

What, what parts were in point 1 to 2 parts per million delivery. Yeah. So this is pretty important as we go through these. And Doctor Larkin walks us through the I want to impress upon everybody, especially for those that, you know may go out and just look at what the landscape looks like for different products.

I would encourage you to always really dial in and focus on what different products specify in terms of their milligram per hour output, which is the amount of ozone that they produce in milligrams per hour.

And then there ppm parts per million, which is also the same as milligrams per liter concentration. They're both. The variable between these two is the flow rate of the water that goes through them.

Based on the the milligram per hour output you have and the flow rate that gives you a yield of how much has been actually delivered in concentration by water.

If you do not find a piece of technology or product that has this information provided, ask for it. And if they still want that, be wary. This is this is it is difficult to effectively use an employee ozone in any kind of application without understanding this information.

It's a really exciting application of this is washing machine laundry. So so tell a story about that. I mean, you know, as far as not being able, you know, not having to use.

So having a fresh smell, washing machines are an issue for sure. Yeah. So my first thing my wife when I first got married, I thought I'd do a nice thing a washer, a white dress and a red dress together.

And she got two beautiful dresses. I was banned from the laundry room. Well, goes on laundry, I'm back in business. So basically what you can do is you eliminate Clorox or chlorine bleach from the wash cycle.

First of all, because ozone yeah, as an oxidant is 50 times more powerful than chlorine and works 3000 times faster at killing or oxidizing any kind of bacteria or virus.

The second thing you can do is cut your detergent in half, your detergent use and half. The third thing is you can eliminate hot water. Ozone activates the detergent the same as hot water does, and it also relaxes and opens the fibers in the fabric like hot water does.

The fourth thing you can do, which is kind of, rough on me, is that you can mix and match lights and darks now without having to worry about the color bleed between them.

And then it also extends the life of the fabrics by 30 to 40%. So when you properly size one of these ozone systems for a laundry, the quality of the fabrics and the linens coming out of the laundry are going to be significantly different and higher quality than than performance than what you've experienced in the past.

With chlorine based systems is very cool. Very cool. All right. Let's talk about the tumbler. This is very cool. The concept of portable ozone generator.

So you and I know Doctor Jason Pang in Australia he was one of the first dentist that I trained. You know he this is this was kind of like standard procedure for him.

I mean, he had patients like we would we might send a patient home on the water pick. He sends them home with the nose on tumbler. He's got lots and lots of case studies that I've seen where this was the therapeutic stuff that they used at home.

Right. So this has the ability to to not only have a portable generation at home, but also surface disinfection. So one of the things that you've done at my courses, which is just so incredibly powerful, is to if you have a device, a swab device where you can look at surface contamination.

And what do they call that, ATP leader. Yes, that's an ATP mater. We, we actually use the high GNN short touch system. Yeah. And so you'll take somebody's phone, which is like, wow, you're going to talk about something making an impression.

Yeah. Can I have your phone for a second? Take a swab, put it in there and it's like, oh, man, phones are just disgusting. They're pretty. Right. And then spray on there and then retest.

Product Line Overview: Inline, Laundry, and Portable Systems

And, you know, you know, the rest is history. So very compelling. It's very compelling. So I think it's important to add you know and we haven't we haven't touched on it yet.

The SDS or material safety data sheet for resonator water reads just like regular water. It doesn't burn, it doesn't sting, it doesn't irritate. It doesn't have any kind of inflammatory response on your skin, your skin, or it's very friendly for surfaces.

But also again, reference the, the, the table with the, the levels of kill for some pretty nasty bugs. It's very powerful. So that's something that's very unique and special about this.

The, this aqueous ozone we're able to produce is that it's very friendly and easy to use. You know, from a regulatory standpoint, the FDA has previously approved it as grass roots acceptance for food products, actually disinfecting foods as well as food contact surfaces.

EPA has it approved or not, as an alternative oxidant for water treatment. So 90% of bottled water in that in North America is processed with ozone. More than 40% of municipalities treat their water systems with ozone for disinfection.

Las Vegas in particular, 1.25 billion gallons a day they treat their water with goes on out of Lake Mead for, parasite control. The last five Summer Olympics I use take with ozone in the summer pools as opposed to chlorine and salt.

So it's a lot more of the more popular and use than we know. It's just behind the scene and kind of an unsung hero in a lot of places. Right. All right.

Here's the workhorse. The use the compact disinfection unit. Most people have this and kind of in their sterilization areas. This is where you go to get your your water bottles filled on demand.

You know, it's super, super convenient. Fill the bottle, go to the put it, hook it up to your chair, up to ten parts per million. That's kind of the magic that, you know, I don't think you can achieve any other way that I know of.

Yeah. So speaks for itself. That was that that's been a real breakthrough in most offices for sure. Yeah. It's a small unit about the size of a backpack.

So it sits on the countertop next to the sink. You connect it to a water supply, a drain, and you plug it in. It's very simple. It takes about ten minutes to install and you can you can install it with regular tap water, or you can go all the way to full the ionized water if you want ultrapure water supplying it.

And you have ten parts per million on demand. Typically we don't see we don't ever see devices off the shelf that are able to produce more than 1 to 1 and a half parts per million of dissolved ozone, and especially at this level of purity.

So it is definitely a stand out. It's the workhorse, as you call it, for sure. Nice space sanitizing I love this. Okay. You have a video on the on the website that kind of shows the swabbing before and after.

This is a unit that puts out a mist, a fine mist. And this is for like surface. Would you just call surface disinfection or, you know, nooks and crannies kind of thing.

Sure. Yeah. And rooms and errors and, you know, spaces for surfaces where you may not necessarily be, be able to get to them fabrics, linens, etc., that'll put us on through a room that'll keep it a level below our shows.

Acceptable limits with people in the room has built in intelligence that knows when someone's left the room, and we'll put it into base mode, taking it up to a higher level so that you can destroy viruses or bacteria that, you know, maybe floating around in the room that you want to address.

Odor diarization is incredible. It's a it's extremely powerful if you. Yeah. If you recall earlier when we talked about nitrogen oxides, you can buy simple systems off the off the internet or at different stores that you sit in a room and turn it on and plug it in an ozone generator.

Those are making ozone from air, and they have the nitrogen byproducts to go along with it. So those residuals are in the room and you're breathing them.

When I reenter the room, all of our technology, including this device, uses water to generate ozone. So we're using a very pure oxygen source. We don't have any nitrogen byproduct being produced with that ozone, which makes it very clean and safer to use than than those other products.

You know, there are a lot of dentists doing pretty complex surgical procedures. You know, a lot of dental offices have surgical suites now because of the implants and such.

And whereas this is just an absolute no brainer for a surgical suite. Well, I didn't put it in. I didn't put in our presentation yet, but we are about to release another one that's even more powerful than this system.

It'll be the most powerful product on the market, and that's an advanced oxidation system that uses a different, a different type of catalyst with ozone to make hydroxyl radicals that can be used in recirculation while people are in

the space, because it doesn't deliver ozone directly to the space.

It uses ozone to generate hydroxyl radicals, which will zap anything that comes through it. And we're about 3 to 4 times higher volume in capacity than the best product on the market.

So that one's a very exciting one that's coming up. We wouldn't necessarily recommend it from an economic standpoint to, you know, waiting rooms or anything like that, but for a surgical suite or some place where you have a very sensitive environment.

Absolutely. This will be the way to go. Nice. Okay. New things, new things to the market. This is pretty exciting. We've talked a lot about this offline kind of walk me through water purification and how this works with your system.

So this was actually born out of walking through the back door of my brother's office periodically to visit him, and stumbling over gallon jugs of distilled water sitting on the floor, and then by people installing our sea-doo and other products.

And you're really needing a plug and play solution that would handle the wide range of water qualities that exist across the US and the other territories and markets outside of the US.

You know, the range of pressures, water flow, water condition and quality. I was in Mexico City last week. You know, a lot of the water, those that are supplied to those clinics start, you know, on open tanks on the roof.

Surface, Room, and Air Disinfection Applications

So they have to go through a pretty sophisticated process of water treatment. Can't use it that water it during treatment. This system will produce by itself ultra pure water.

And then we've added an additional feature to it that the ionizes the water. And we we looked at all the sterilization equipment on the market and we took all of their requirements or specifications for water and ensured that this system would produce water at a level of purity that will meet their requirements, so that we can use that now in sterilization equipment, as opposed to distilled water out of their gallon jugs or other distillation processes.

They will also connect directly to our CDR. So between this and the CDU, you'll have the best, highest quality pure alternated water that you could possibly get.

And then secondly, you'll have a side stream or side supply that's available to use, and any other equipment that would normally require distilled water.

This will be distilled equivalent. So we're pretty excited about this. And this one will be available. And you know Q2 of this year. Very cool. We're we're starting to take some pre pre orders and pre commitments now for folks that are that are installing our equipment and want to make sure that they get on the list to get it cool.

Also don't tell the sponsor to talk to me about that. That looks awesome. Yeah. So we patented that last year. I was and I went through the whole patent and process, but I hadn't really seen the, the, the actual prototype yet.

And I was I was just happy about it when I got to it. We had a global meeting in Bangkok, Thailand last month when I saw this product in person, I thought, okay, this is going to be a game changer.

I show it with reusable towels, which isn't really appropriate for a dental and medical office. They need to be single use towels, but this is a device that you know has a reservoir of water in it.

With our built in ozone generation equipment into it and generates a designated water on demand, has a spraying system inside of it that'll spray the top, you know, 1 to 3 towels so that you can open it and grab a nose and a towel at up to 161.6 part per million, which will give you disinfectant quality ozone for surfaces.

So you have a towel, you grab it, you're able to use it. 1.6, 1.2 to 1.6 is kind of the magical number for surface disinfection. We don't yet have standards or procedures in place in the US through the EPA to as to be able to certify as an equipment to a disinfection standard.

There, their guidance is to rely on the manufacturer and the user to make sure that they're using it appropriately. However, the European Union, we've spent several million dollars and well over seven years with other industry partners developing with the European Union in collaboration, a certification standard that puts us it gives the ability to recognize surface disinfection, what the required concentrations and contact times are for a variety of applications, and the contaminants, and then a process for actually certifying manufacturers and equipment as having been qualified to meet those standards.

So yeah, we've been successful on all fronts with the European Union. It's a great reference for us. This this product will be deemed approved and certified for Surface Disinfect and by European Union standards.

And so we'll use that as a reference. But of course, you know, in all of our products and we spent a lot of time with with practices as much as they need, making sure that they're implementing this appropriately and getting the results that they need.

And we always recommend some, you know, some auditing or spot checks to make sure that they're they're using it adequately and getting the results and efficacy that they expect.

That's cool. Very cool. Okay. Now this is the air disinfection system. Okay. I did sneak it in. I did so you get in. So yeah, this is the one I referred to as earlier advanced oxidation processes.

Even more powerful produces oxidants in the form of hydroxyl radicals. And they're even more powerful than ozone. The nice thing about it, though, is decomposes ozone so that you can actually recirculate air in occupied spaces and not have to worry about delivering ozone, which might become a, you know, objectionable to the occupants.

And it it'll just absolutely destroys anything out there, I think. I think it's 14 trillion hydroxyl radicals per minute. I think the next best one is 3 or 4.

So we have about four times the, best unit on the market. This one is going to be a game changer. This product is the first of many that'll go across a platform.

We've we secured issued patents for it last year. We're pretty excited about this one. So so I have experience with this type of device going back to Covid.

I've got a vacation rental on my property and and I thought that was a, you know, a partial solution to what I needed to do when, when gas would come and this, that and the other.

So I had this commercial unit gas, and I would put it in and I would put it on a timer, and then I would put like a caution sign on the door, just to be sure that man, do not walk in here when this thing is on, because I only did it one time.

So the whole thing about ozone gas is that it's extremely irritating to the respiratory tract. And I don't know if you've ever, by chance, have ever taken a whiff of it.

And I've only done it once, and you will not forget it. You will cough like a crazy person for a half an hour. It's, you know, just with one really good whiff of it.

Right? That's right. It's it'll get you if you get it in high enough concentrations. All of our aqueous products are highly dissolved. You can smell it.

Our ability to detect most of us. Our ability to detect ozone through smell is about point oh 1 p.m.. And air, which is

different than aqueous. It's it's it's a higher ratio of ppm. And air is a higher ratio to water.

But our ability to detect that is very, very low at low levels. Our ability to detect is very high. Much we will detect it far, far well before it's becoming an issue.

Water Purification, Towels, and Regulatory Progress

And if you if you do inhale gaseous ozone at a high enough concentration, you'll know it for all your coffee you need to move, you need to hold your breath or whatever and get out of there.

But it's no different. You know, people ask me about it and it's really no different than ammonia or chlorine based cleaners. You know, if you inhale higher concentrations of chlorine gas or ammonia gas, those are even worse as far as toxicity and effects go.

But when they're dissolved in solution, they become a very effective disinfectant or sanitizer. So very similar. All of our gaseous products have protections built in to limit the likelihood of that happening.

That ozone generator is still made ozone. It's still made from water, so it's still clean. I'm sure it is not being made from air. It is. We have the ability to turn ozone on and off, so we can either deliver ozone to the space when it's unoccupied in high concentrations, or we can deliver hydroxyl radicals, you know, when it is occupied.

And no need to refill that one. We actually have a patented process for dehumidifier to air as it comes through collecting that condensate and using that for our water.

So it's very efficient and effective from a maintenance standpoint. Well, it's it's it's a it's a great thing to do for a rental property as far as like odors for your hand.

Anybody smoke in a property or any kind of a lingering I mean, it leaves a really fresh air. You just feel like it's a it's clean, you know? Yes. Yeah.

It doesn't mess the odors. It actually does. It actually oxidizes the volatile organic compounds that are being produced from whatever's causing the odors.

And then it'll also going to attack those at the core. Those contaminants that are generating those voices. So it actually kills it. It doesn't mask it.

Very cool. Okay. Any other new developments? Things that you want to talk about. Sure. Yeah. I mentioned earlier in the call that in the session that we were, you know, we're taking a long term sustainable view.

We get asked a lot of questions. You know, what is the FDA's position or the EPA's, etc.. And I touched on that earlier for you. You know, for us to openly market and make claims and dental water lines, we need to make sure that the the FDA's reviewed and agrees with us and is evaluated.

Our our organization, our process, our commercial activity. We're ISO certified to medical device standards. So we're we're certified to produce medical devices.

As a as a manufacturing company, aqueous ozone has been a previously approved for dental waterlines, for instance. So we're actually going through the 510 K approval process, which will give us the ability to openly market and make claims about using as a native water in dental water lines.

Our testing has demonstrated the ability to eliminate for up to six and a half over a 6.5 log, kill on biofilm. So that means we had to start with about 200 or 320 million colony forming units of Pseudomonas aeruginosa per centimeter squared, which was delivering 200 million copies per milliliter.

Pseudomonas. And in the effluent water out of the out of the dental water line. So you guys and dental are trying to

stay below 200. We're at 200 million.

And not only do we kill the bacteria, the planktonic bacteria that was free in the water, but we actually disintegrated the biofilm and reduced it by, I think 6.7 log reduction, which is very unusual for most treatment systems.

Typically you have to go through and shock lines to get rid of the biofilm. Most systems that we use today just simply kill the bacteria that's free in the water, but don't necessarily resolve the biofilm without going through a very specialized, shocking process.

So we're going through that, that process just to make sure that, you know, we're aligned and can demonstrate, you know, with regulatory bodies that we're doing what we say we do.

In the meantime, you know, we encourage everyone to test their lines on a routine basis. Make sure that, you know, if you're using it that way, that you're using it effectively.

And, you know, we can help with that. Yeah. I you know, I think it's just a matter of time before it's a standard of care in dentistry. It's just an absolute to me. It's just a no brainer.

You know, once, once I discovered what you were doing, you've been a regular presenter at my annual meeting now. Look forward to it. Every year. It's it's a great collection.

You know, it's kind of funny because it just became a meeting of innovation, you know, new things. And and so April 26th and Lexington is our next meeting.

And, you know, another really interesting collection of people where we're really trying to move the needle on healthcare and just make things better.

And you're definitely a part of making things better. And I'm so glad that I how did you down as you did? Well, we're it's it's a lot of fun. It's the collaboration is incredible.

The the follow on and the the references and the you know, getting the word out, you know, continues on even after the session. So it's it's been great for us.

We're we're very happy and proud to be a part of it and look forward to seeing a lot of it. You know, a lot of the familiar faces as well as a lot of new faces at the next one.

Very good. All right. Well, thank you for your time, Darren, and we'll see you soon. Thank you. You guys take care. All right. Thank you for tuning in to Doctor Talks.

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