Introduction and guest background

Hi everyone. My name is Doctor Richard Horowitz and I'm your co-host of this Doctor's Talk Healing from Lyme Summit. And it is my great pleasure to introduce to you a very good friend.

Holly and I have known each other for a very long time. I will read you a brief bio of Doctor Halligan. She is associate professor of microbiology at Suny Adirondack and has previous work experience in clinical laboratories and laboratory director for educational laboratories.

She's the author of scholarly articles and nationally published textbooks, including the first microbiology textbook, Laboratory Manual, available to students as an open educational resource.

And Holly, I'll let you I'll let you take it from there and kind of fill in a little bit your background and how you got into Lyme disease. Why don't you tell everybody how you got into it?

Kind of what's happening these days. And the topic of our talk today is going to be Lyman tick borne diseases in pregnancy. I know one of your favorites and mine and a really important topic, I think, for people to understand.

So please take it away. Well, so, you know, kind of where we got started was the fact that my daughter developed Lyme disease and she, you know, it took a very long time.

This was before, you know, this was back when I believed that the standard definition of Lyme disease was, you know, you get the infection. You know, you look for the bullseye rash that you get the disease and, yeah, that turned out to not be quite so true.

And she ended up, quite ill to the point of disability that lasted for a few years, that while it took us time to figure it out, you arrived on the scene to, you know, as I was looking for resources and just, you know, once I realized that the the way it was being portrayed as a disease was wrong, you know, your name pops up right away because at that point, ten years ago, actually, more than that now, right?

You were the expert then, and you still are today. And, you know, the resources that you had available. And just between that and a lot of other things, we were able to get her on a better course.

We get her some treatment that was actually that returned her eventually to, you know, a steady state. And at that point, I decided that I had to do something about it, whatever that was.

And this is how a lot of people enter the Lyme world, because it it is a passion, and you want to make a difference because it was such a nightmare for my family that at that point, you know, I'm a microbiologist.

So this is a bacterial infection. So I said, this is how I can make a difference. And I started talking about it. I got very involved in, governmental advocacy because, you know, this is bigger than just a medical problem.

This is actually a societal problem. So in New York State and then actually at the federal level as well. So I've served on several working groups at both the state level and at the national level, as have you.

You know, I, I am now a reviewer of grants so I can contribute toward the decision making as to who gets money to do what kinds of research, you know, and along the path.

I was the founder of a 501 C3 advocacy organization and also working with Tammy Crawford and Arizona Focus Online, which, you know, we came about as a organization, and our main mission was to figure out a way to get this disease easily, more easily diagnosed so that it be treated more effectively so that other children don't have to

go through what our children went through.

So that's where I'm at, and I'm still working on that to this minute. And, you know, our relationship has been a very strong and positive one since we first started stalking you to try to get you to contribute on the, you know, advocacy, the governmental advocacy side, which you just very generously did.

And, you know, and so here we are. Great. So and your daughter is doing much better, which is, of course, very important, which is great. And, and as you said, you've you're working with Tammy Crawford.

Now, you were telling me just before we got on that you actually developed a company. We may have a better diagnostic test. It's coming along soon, Yes.

And it's, you know, the advantages of this test. So this could be a whole talk in and of itself. But the quick thing is, it's one test. It's. That can be done routinely in a laboratory.

Physicians will know how to order it as opposed to the and interpret it because it's going to be a yes or no kind of test. And this came about as research that we focus online, which was the organization that Tammy Crawford founded, has been funding research.

And through that process, we've identified several biomarkers, put them all together, looked at the best technologies to make it affordable and accessible.

And that's going to be, you know, we are at that point where we're ready. We're looking for partners to make it come to fruition. So that's great. Welcome back. Congratulations.

Because that's that's obviously a big effort. And of course we always knew that we needed better diagnostic testing. So let's jump in. Let's jump in a little bit to Lehman pregnancy which obviously you have a passion for.

And it's something I have to address in my medical office all the time. Let's talk a little bit about transmission of Lyme in pregnancy. Right. It wasn't wasn't really recognized.

Even a couple of years ago. People were kind of debating is it really transmitted which tick borne infections are transmitted. So can you speak a little bit about the most common tick borne infections that the patients need to know about?

Well okay. So I'm going to start with Lyme disease. And I do that because it is the most prevalent of the various illnesses that are attributed to being vector borne or tick borne.

Right. And, you know, it's not only prevalent in terms of, vector borne diseases, but it's also very common. It's a very common infectious disease. So because there is no really very accurate way to determine how many cases there actually are, since the testing is not very accurate, the CDC actually estimates based on medical records.

So they do reviews of diagnoses. And and based on that, they're estimating that there are nearly a half a million diagnosed cases of Lyme disease in the United States per year.

Lyme disease in pregnancy and congenital risk

And if you compare that to all infectious diseases that are tracked by the CDC for surveillance purposes, that puts Lyme at number three. So number one is chlamydia, which is sexually transmitted.

At number two is gonorrhea which is sexually transmitted. Number three is Lyme disease. And number four is syphilis. So in sandwiched in that range you have this supposedly tick borne disease, only tick borne disease.

In fact, the people who, you know, discover this disease and have been sort of the leaders in the field for a long time, get very angry with you if you dare imply that it's any other form of transmission, because that, you know, it's

got to stay in that vector borne disease area.

But they're just statistically speaking, there's no way that it can only be tick borne, because ticks are really not very good vectors of bacterial infections, you know, nothing else, nothing else they transmit to us reaches that level.

So Lyme disease is most prevalent. And like I said, you know, one of those other routes of transmission that's being investigated because there is significant scientific evidence to indicate this happens, is maternal fetal transmission.

So a pregnant mom can pass this bacteria, to their fetus, which and then the baby can be born with that particular infection. And, you know, this is not uncommon with syphilis, for example, which is a infectious disease caused by a bacteria which is not related to Borrelia, the cause of Lyme disease.

But it is it has many, many genetic and other characteristics that that put it. It's a spear acute, right. So it's a particular type of bacteria that have amazing superpowers.

They're just really amazing bacteria. And you know, congenital syphilis is well known, well established. It's a risk that doctors are always on the lookout for congenital Lyme disease is not, you know, that's where we need to make a difference.

We need to go find out more about that. We need to definitely show up. We need to determine if there's a congenital syndrome, like there is syphilis, and we need to prevent it.

I think that is really the key now. Allen McDonald. Even Allen story years ago they did publish on some of the the fact that there can be some tracers that are seen.

Can you talk a little bit about in the kids like, you know, hypertonic not enough muscle tone, which I know is common in the population with low birth weights.

Sometimes there are problems with the eyes, etc.. Can you talk a little bit about what showed up in these kids with one. Right. So you know, the very first case which was documented in 1985, I might add, the particular issue was a cardiac malformations in a baby born to a mom with one disease.

Right. And at that point in 1985, they actually the CDC jumped on that. And they actually, created a repository of samples. They try, you know, they actually were going to look further into it, and they did for about five years.

And then that sort of disappeared off of the radar. And yeah, there's lots of reasons why that happened, not the least of which is there was a lot of controversy over Lyme disease during that period of time to begin with.

And so the focus went on, went directly over to the tick borne illness. So that was the one that cardiac malformation. And then they looked for other cases and they found other cases and you know, the most commonly it's it's adverse pregnancy outcomes.

Right. So fetal loss stillbirth, preterm birth the malformations like I said, the cardiac was one of them but also neurological were identified in certain offspring, you know.

So with that background, you know, it it's why that why sort of fell off the radar is, you know, really too bad because there were like 20 or there's a, a significant gap, a 20 year gap between when all this happened and when we got back to investigating this a little bit further, those kinds of things, you know, because you have to also consider that pregnancy is a pretty tough thing to do, even when you're healthy, you know, so these things happen and you look at the rate that adverse outcomes occur.

And, you know, people who don't have a particular disease or any disease. And then you compare it to these others. And with Lyme disease, years ago when I was learning about this myself, and early on, even in my career, you know, wasn't like I was standard, standard for my practice to give antibiotics.

Of course, now it is. But the first case that really highlighted it for me was a woman, as you said, who kept having multiple miscarriages. There was no reason at all why this was happening.

We finally put her on oral antibiotics like Seth, and she still miscarried. We had to get her on three months, a year or seven before she actually had a healthy pregnancy.

She was the first case for me that kind of highlighted, like, wow, I better be paying attention to this. And now at this point, I've probably treated at least over 100 women with antibiotics during pregnancy.

And as you know, the oral antibiotics, you know, they're safe for the pregnancy as long as we're talking penicillin, cephalosporins, right. Occasionally you can use the macrolides claim that can be used, you know, later in pregnancies.

But but these are antibiotics that are safe. It's just of course you have to be careful with some of the other ones. I think doctors have worried about leaving a woman on antibiotics, you know, during the entire pregnancy.

But it's really the only way. And, you know, the studies have come out that if you give intramuscular IV, the rates right of transmission are actually going to be less.

So we talked to the women about I am by bicycling, not the most comfortable treatment in the world for the mother or any pregnancies can be difficult enough.

But we've had very good outcomes generally with women who've done by selling shots like twice a week during pregnancy. Right. And you know, it's it's a risk, you know, without antibiotics, the risk of one of these adverse outcomes is 50%, right?

One out of two. And when you add in the antibiotic treatment it goes down to 1,415%. That's significant right. But to be able to do that, to be able to effectively treat and to prevent congenital transmission, you have to be able to identify that the mom has it.

And there's a whole lot of moms who give birth and have no idea, you know, may or may not have any idea that they actually have Lyme disease or an another infection, you know, and that time goes on before they actually realize that.

No, you know, and I've questioned like, and I know maybe the options just need a little bit more education on this. But I've always question like the, you know, the HMC, the Horowitz M6 questionnaire that we validated years ago, it's such an easy screening test that they could give to women in the waiting room before they see an OB, but I still don't think it's being used.

I mean, you may have more information, but I don't think they're screening on a regular basis at this point. Are they? No, they are not. And that's because it's not one of the recommendations that flows downstream from the medical authorities, because at this point, Lyme disease is still considered a vector borne disease.

Ticks transmit it. That's it. Nothing else. And so that whole paradigm has to change. It truly has to change. Thank you. I think we're at the cusp of where it's going to.

Right. Although interestingly enough, I mean the busiest a tick borne transmission, but also in the bloodstream, solid organ transplantation and maternal fetal right.

So it happens with the BCI. Right. There's been cases of Bartonella, right. In certain countries like Brazil where they found the first cases of it, but also like here on a plasma rocky mountain spotted. Right.

All of these infections, relapsing fever, they're transmitted in fact relapsing fever bacteria not so much Borelli Miyamoto's disease but the actual relapsing fever.

Right. Huge fatal outcomes in the children with disseminated intravascular coagulation with the mother's. And they bleed out and they lose the babies. Right.

So these are these are dangerous illnesses that unfortunately I mean, that's why we're talking about it today that have to be highlighted for the safety of the children of the world.

Right. And, you know, those other diseases that you just mentioned are all, you know, you can find evidence of that in blood, right? So the microbes are in the blood, in cells or in the blood itself.

And so that makes a lot more sense to, to medical providers. It's just okay. So it's in the blood. Therefore it can be transmitted through the placenta.

Lime is not. And I think that is another one of those roadblocks where it's just like how could this possibly happen? But again, I just want to go back and look at syphilis and other, diseases where it's not in the bloodstream like Toxoplasma and other.

You know, these are protocol illnesses that are typically not in the bloodstream, but it happens. So these are this is just one of those things where medicine needs to evolve right and right.

And you know, for you and I, I mean, normally if I were screening a pregnant woman, I wouldn't just do the Eliza, which has a poor sensitivity, but I would be doing at least an immuno blot, right?

IgG for my genic for the eight major species that they're picking up. And then of course, you can use Question Lab for by reference, standard labs for Alicea and a plasma Rocky Mountain spotted fever, Q fever, typhus.

I mean you can use all of the regular labs. I like the the BCA fish test for my Genex because, in fact, you probably know some people close to you, in fact, that have had women that have positive active bbca during pregnancy.

And if you don't treat it, the child can have hemolytic anemia with the red blood cells just bursting apart at birth with hemolysis and high bilirubin, so it can be dangerous and life threatening.

So this should actually be really a standard screening for women, right? Just like they will check for measles, mumps, rubella and hepatitis and everything else.

This just really has to be added to the list. Yes, it really does. Really. You know, one of the like you mentioned, one of the things with those other diseases is you can detect them a lot more readily than with Lyme disease.

So that is an advantage. Although I, I really think that a lot of cases of tick borne diseases just go kind of, you know, fly under the radar for a lot of people.

So. Right. Yeah. Right. So as far at this point, women really need to be doing tick tick prevention, right? I mean, I don't think before or during pregnancy they're paying enough attention, like even mosquito bites.

Of course you can still get Zika virus and other things that get in. So I mean, what do you like as far as tick prevention? Because the women have to do have to be careful a little bit, right, with some of the chemicals that are out there.

In fact, there was an article just that got published on Deet. I was surprised to see this. It got published last week. Normally we think of seizures in children as like, be careful.

There was something about actually causing genetic abnormalities with epigenetic changes. So the first time I'd seen this come out, is there one particular one?

Do you like the essential oils like lemon eucalyptus oil? Any preferences you have specifically? Yeah. So one of the fun projects that we did in my lab was to see which of what kinds of essential oils actually worked to repel ticks.

So a very simple experiment to do. And I got to say, the essential oils work as well as most. I mean, the advantage of Deet is it kills the ticks, right?

I mean, as opposed to make them want to run away screaming, you know, so but the point being, those essential oils which generally come at very low risk work as effectively as these others that that, you know, that have a little bit more, like permethrin and other things that they just say, you know, permethrin, don't use it on humans, use it on your clothes, you can use it on your animals, but you can't use it.

I knew that stuff is you know, when you're pregnant, you really don't want to be doing that. But the essential oils are good at repelling, and you just have to remember that it lasts for a while.

But you have to. You know, you have to keep reapplying it again and again. So a lot of them, you know, like the lime away, not leave away, bugs away. I'm sorry. That's a good product.

There's there's a bunch of them now that you can actually get. And I was very interested to find like I was up my local egg right by the farm store and I walk in and there it is right there, you know.

So no worse than not just selling you the off and the other Deet or other chemicals, they're they're actually they realize that the essential oils are if there's a market for that too, you don't have to go to extremes to get it.

It's right there in your face when you want it. Right? I mean, when people are not pregnant, I mean, I personally when I garden outside, I like 20% picaridin because it does a good job with the mosquitoes also.

But the the only study I saw on a, I would call it a patented chemical which which comes from Avon Skin so soft was 3535. They have like a 3540 year experience in Europe.

It's an amino acid based. So they actually showed that it was safe from pregnancy. So that pretty much I 3535 and the essential oils like lemon eucalyptus is really kind of the only ones in pregnancy, right, that the women should be using.

Right? So, Holly, if people have questions on Lyme in pregnancy or the testing you're doing, where can they contact you? And do you have any upcoming seminars or things you're doing that people should know about?

Yeah. So on the diagnostics front, I'll be speaking at the Live Lyme Summit, which is in April, and I'm not 100% sure what the data is, but you can go to live LA and find out when that conference is.

So I'll be speaking about that.

Diagnosis, screening, and tick-borne infections

And, you know, I also want to say that a lot of what I know about Lyme disease pregnancy, I mean, it came from a personal place, but nonetheless, in 2022, we convened a Banbury conference at the Banbury Center, which is Cold Spring Harbor Laboratory in Long Island, on this topic expressly.

And there will be a paper, conference proceedings paper that will be coming shortly that will basically preview. The purpose of this paper is review all of the available science and to provide recommendations, going forward.

And I, you know, generally speaking, that I'm going to be one of the authors of that, and we're working on it now, and hopefully that will be out and available shortly as well.

For more information on this particular topic. Yeah. No, that's great. And and as usual, and I don't know if everyone out there knows that who's listening, but, the moms out there who had experience with their children having Lyme disease, boy, these are the Lyme warrior moms.

Boy, you don't want to piss off this group because they'll just go out and change the entire landscape, right? To

make sure this never, ever happens to another mother or child.

So thank you for all the good work you've been doing over the years. Holly. You've really been putting in a lot of extra time. Well, thanks. I'm back at you because it's people like you that actually support us that makes it all work, you know?

So, yeah, watch out for the mama bears. The mama line bears? We are not messing around. We're making a difference. So, so so let's talk about it a little bit for just as far as antibiotics and pregnancy.

Now, one of the things that came up when I was at the working group and we both served at the Tick-borne working group at HHS, and I was co-chair of the other Tick-borne infections.

One of the things that was highlighted by one of the CDC researchers on Rickettsia with Rocky Mountain spotted fever is that you can give a short course of doxycycline to a pregnant woman and to a child below eight years old, because a lot of the pediatricians have said it's going to destroy the teeth, you're going to get teeth staining.

But that was the old tetracyclines, right? It wasn't doxycycline. And there are kids that have died from Rocky Mountain and Rickettsia infections or like yeah, and a plasma because the pediatricians don't want to treat.

So you know, just to highlight as we're talking about these antibiotics in pregnancy and tick borne infections, you have to watch for you can use your short course of it.

If you highly suspect that someone got exposed to recapture like Rocky Mountain spotted fever, or looking at a plasma rifampin as a backup. But but doxy.

I learned that really from the CDC when I was co-chair of that. And I and I make sure I highlighted in all the talks because a lot of times, you know, mothers will be listening or other doctors out there will be listening and go, gee, I guess I can give a course of it because it's something that arises all the time, right?

Even our patients, after I've treated them with, you know, some combination therapy, I mean, they will get tick bites in the last me, you know, what should I be doing? I think I'm pregnant.

And it's like, well, send out the tick first thing to let's see what you've got. Right. So by the way, do you like is there one particular company you like to send out the ticks to to get them tested?

Well, you know, in New York, we had we used to have, thing a mani lab, which was an upstate medical center, and they were doing tick testing in New York State for free for New York State residents.

And I. That was awesome. And they ran out of funding. And, you know, so one of the things we're doing is trying to work on the advocacy side at the New York State level to get the funding, get them to fund that.

Right. That is a huge resource right there. So put that on the burner because hopefully we will have access to that testing. Again, my personal what I tell people here to do is to send it to Tech report.com, which is at UMass Amherst.

And I would they have a very fast turnaround time. And you know I would, I would I mean granted it costs money, but it's usually depending on what you ask them to do, it's between 50 and $100.

And to know that is a that's that's huge right. To know if the tick you know has those things in there. Because if it does there is a chance that those things got into you.

So you want to know what you're dealing with before you have a bigger problem with that. I mean, there's there's there's technology in Colorado, which is another one that I advise people to look into.

And then there's the lab in Rhode Island, but they also do a good job. But Matt Mather's lab in Rhode Island. Yes.

Mather's lab. But, you know, the tech report is easy because it's just easy to access.

They, you know, really easy to fill out the form, get it sent there so it doesn't require any, you know, just you have a tick, you go to the place, tells you exactly what to do.

You send it, you get the results back in 24 to 48 hours. And you know, then then you can talk to your doctor and say, all right, look, the tech had this, you know, and go from there.

Right. And people need to realize and I think a lot of people are educated about this. But the reason you want to use technology or a tech report.com is because you could have other organisms in these ticks that you're not even aware of, including tularemia, by the way.

I mean, the things that certain doctors don't even look for. So you want to have a sense, like, are the symptoms going to be coming out? What are the symptoms they need to be looking for?

The only problem and the reason you need tick protection is Powassan virus is transmitted with within 15 minutes. Rickettsia. Rickettsia can be transmitted within ten minutes.

And relapsing fever. Briley Holmes I could be transmitted within five minutes. So you don't really have a lot of time here for some of these infections.

You've got to be using prevention and doing frequent tick checks right when you're outside. And doubly important because you're dealing with a mom and pregnancy.

It's two people, right? Being affected. And, you know, one of the I don't know if this is a myth or just I kind of view it as misinformation is that, oh, the tick has to be attached.

This is for Lyme disease, right? The message is the tick has to be attached for 48 hours before your at any risk. That is not true. You're at higher risk the longer the tick is attached.

But you are at risk as soon as that tick decides to put its little device into you and start sucking your blood. Because the first thing I do is spit into you, right?

And that's when, you know, is that the fluids are exchanging. That's when that risk happens. But like you just pointed out, even Lyme disease, right? Even Lyme disease can be transmitted pretty early on.

My daughter's tick was on her for less than 12 hours. I can tell you that. I can tell you other people, the stories other people have told me. We found the tick.

We picked off the tick. We took the tick. We did all the right things. And we were advised to wait for the bull's eye rash. And that was the biggest mistake, the worst advice we ever got.

And if I could go back and change one thing in my life, it would be that wait for that rash, because the rash doesn't show up. And that's, you know, now you're right about the guidelines and, you know, to explain it scientifically.

And I don't know why they don't hide this more. They showed clearly that if a tick is partially feeding on another animal and then it gets to you, it's already moved from their mid gut into the salivary glands.

So it's like ready to enter your body. So where this came from of 24 to 48 hours and most will say 36 to 48. If if a tick is partially fed you can get it within hours of getting a tick bite.

And again, your daughter is a perfect example, right? Right. And many, many, many other people too. So don't rely on that little piece of data would be my one of those pieces of advice that my mom would give to other moms.

Right? Right. And the other thing is, you're not going to get a bull's eye rash if you are pregnant and you pass it

congenitally, there isn't going to be a bull's eye rash.

There's not going to be any rash involved in that. So how using that as perhaps the only clinical sign of Lyme disease is not a good idea. Right. And the studies we published, I mean, the CDC on their website is still I don't know why they haven't changed this.

Up to 70% of the people in the US get it. I mean, Europe maybe the the numbers are higher. But in our studies, what I've published, it's closer to 18 to 20% of the people with chronic Lyme LDS saw any, rash.

It's right. And of course, they don't look like bull's eyes. Half the time they're spreading red rashes and they're mistaken for spider bites and for cellulitis and for herpes zoster if they have a vesicular bolus component.

Right? I mean, it's tricky. Yes, it is tricky. And you know that I think that is becoming more widely accepted. So, you know, the issue of the rash is one thing, but the the issue that it doesn't always show up as this lovely target.

Right. The bull's eye appearing is I think that's finally hitting mainstream. Right. Because the most common form of it is a red raised rash, which could go along with a lot of other things as well.

Right. So so you have you interviewed some of the pregnant patients? I mean, when I, when I teach about Lyme and I discuss the classic symptoms of good and bad days, symptoms come and go, migratory joint pain, migratory muscle pain, migratory nerve pain tingling numbness, burning, stabbing.

That's the hallmark with of course multi systemic brain fog, etc.. You've interviewed pregnant moms that have had some of these classic symptoms or some that just felt more tired than usual, and didn't even know that they really had it?

Yes. And one of the things with pregnant women in particular, I mean, women in general, but pregnant women in particular, is that because, you know, women are carrying this thing and, you know, we don't want our immune systems to attack it and destroy it.

Our immune systems are suppressed during that time. Right? There are certain parts of it are downregulated. And part of that is the inflammatory response and all the rest of that that could cause damage to the fetus, which means that, you know, there have been 4 or 5 studies now where they're trying to characterize this whole process, starting with the pregnant women, where pregnant women don't develop the rash, they they may not have systemic symptoms.

I mean, most of them don't. So, you know, you're feeling kind of crappy. Then you get pregnant and after you get over, you know, that first part where you're sick all the time and then it's like, oh, I'm feeling pretty good. Why?

Because your immune system hasn't isn't playing a role in the pathology at that moment, but that, you know, that's just basically the symptomatic part of it.

And that's a big I think that's a big problem because without testing and without having symptoms being asymptomatic, it's going to be very hard to say that woman has Lyme disease.

Right. And that I think that's a crucial point that, you know, we just brought up here is that because pregnancy, things change, a lot of the pregnant women who's come to me with Lyme disease, they basically say this is the best I've felt in a long time because of the way the immune response allows you.

Right? It's like God protecting the mothers. It's already bad enough with the, you know, says with the nausea and vomiting in early pregnancy, which, by the way, I mean, they've shown actually it's a sign of healthy pregnancies, right, with estrogen levels, even though I'm sure you don't like it, it I could actually, in a sense is good for the baby, but the fact that the classical symptoms can be absent in pregnancy, that is huge because as a clinician, that's what I'm using all day long to be able to diagnose people.

Right? Right. And without an accurate diagnostic test as a screening tool or anything else, it's it's a problem. Yeah. Yeah. So, you know, the way we would do it in these women when they don't have classical symptoms, if it's the first time they're coming to see us and it's happened, in fact, there's, you know, one person recently who came to us who wasn't even complaining of classic, classic Busia symptoms, but the BBC of fish was positive in her blood.

And when she hits third trimester, that's where I'm going to have to start using things like the Tovah Cronan. Is that from mice and with Glenda? I published a study a couple of years back of this one woman from Europe.

She had had a classic acqua Dermatitis Cronica made trophy cans rash, one of the few I've ever seen in the U. S. from really easily. And they've shown that the Lyme is persistent right at the edge of where that rashes.

But she also gave birth to four consecutive children and just was pregnant, one after the other. And two of those four, she had active Berbizier. And we had to go in at the end of the third trimester and treat her.

Fortunately, all four babies were completely healthy, but she decided to do by selling shots one shot twice a week for four consecutive pregnancy. She, in fact, she never came off the baseline because she would literally get pregnant within months after her last pregnancy.

So, you know, for the women out there, I think it's not an easy treatment, but it's something to consider because the intramuscular injections there, you know, it's 24 hour coverage.

You don't have to worry about the peaks and troughs of the oral antibiotics. Right. And, you know, generally pennies by selling, which is penicillin, the, you know, is a pretty specific drug.

And, you know, generally speaking, you're not going to have the same overall impact on your gut microbiome, for example, or other aspects that other antibiotics would actually cause.

So so, you know, and the other issue, as long as we're discussing ticks and tick borne infections, we've mostly been discussing here Ixodes scapular or Ixodes specific pacifica's.

Right, with Lyme disease and and a plasma bbca Powassan virus. Really Miyamoto. Which by the way, that brings up a good point, and we should discuss this just briefly.

So this relapsing fever Borrelia, you will not get positive Lyme testing, but you have a Borrelia in your system. This is tricky because if the doctors and patients are not aware that there are these other relapsing fever Borrelia that you don't test positive on an Eliza blot, you still could have a tick borne infection.

And the test is already, we know, the sensitivity of the test standers that great. But that's a great example of one where you've really got to know your tick borne infections to know what to look for, right?

Right. And, you know, the scary part of that is we don't know what the prevalence of myomectomy is for that very reason, because we don't have screening tests.

And, you know, it causes symptoms that are very similar to Lyme disease, with the exception of the rash right there. That is not associated with the rash.

It is transmitted by the same ticks, but it is a relapsing fever early. And that matters right. Because there's a Lyme Berlioz's. And then there's a relapsing fever. Berlioz's.

They hang out in the blood more. You know, it's more likely that there's really good evidence showing that the relapsing fever Borrelia are transmitted.

And it's not even disputed. It's just presumed to be rare. But you shouldn't presume it to be rare because we don't have data saying, you know, just because you don't have the data, you don't have the information because we don't have a way to determine it doesn't mean it's rare.

So of course, when is it my maybe my daughter's was actually my I'm actually you know in the treatment is the same. So once you get the hint that you've got Lyme you can go for it. But.

Right. Well the amoxicillin is not as effective. Right. With me. I'm not sure that's part of the problem though. And, and of course the other relapsing fever as we talked about, they can be deadly right back to, to actually the fetus where there's fetal demise, disseminated intravascular coagulation, even strokes.

I mean, thinks that as an internist you would never think of and then of course, but and just for a moment to mention that if there was a pregnant woman living in the Midwest and she got beryllium ionized right, which doesn't even cause a bull's eye, it it causes a macula, purpura rash.

You know, you've really got to be educating women about this, because that would be a rash. And it could be a doctor is not educated in the Midwest and says, oh, that's not Lyme disease, but it is actually a form of Lyme in the United States.

Right. And so, you know, the data indicates that it's rare again. But the point being, to figure that out, you got to PCR, you've got to do a genetic analysis to figure out what's Mahoney or you know, so there's it's complicated.

And the other ticks, I mean, as long as we're discussing this of what's at risk for pregnancy is the the Lone Star tip, which has now been expanded even more than Ixodes ticks all throughout, you know, Florida going all the way up to Maine, into Canada.

And the way I remember what's in it, I call it teres v with tularemia or liquid alpha gal rickettsia story. Right. I like my mama. You know, I learned them in med school that way to remember it.

And then viruses like heartland bourbon viruses, which again now are also showing up right in these ticks can be deadly. So again, tick prevention, tick prevention.

Remember if you're pregnant or thinking you're getting pregnant you want to look at those essential oils. I r 3535. Make sure you're doing frequent tick checks.

These these can be deadly organisms. I honestly think the tick checks of all of those different things, because they're ticks are also very remarkable organisms.

I just think that the tick checks make sure you do it on yourself and do it on your anybody you care about, you know, strip down and look at all those places where they can be because they're really very good at what they do and they're very tricky.

Yeah. You know, you know, what are the infections. And we're not sure, you know, the controversies on Bartonella. The problem with this is there was one study I don't know why they've not put more research money into this.

So there was an Ixodes tick, you know, in Europe, Ixodes resinous, that there was one species of Bartonella, Bartonella Burt Lacey, that was shown to be transmitted.

But now we have all these ticks containing Bartonella. We know that Bartonella, you know, can theoretically be transmitted. In fact, some of the women, when I test their, cord blood, it maybe we should talk about this for a second.

When you finally do give birth. I've seen Bartonella fish is positive on the cord blood. Now, the good news, from my perspective, the women that took, for example, a cephalosporin in pregnancy on this f Sefton near Sefton.

It seemed like it was not transmitted like the mother's immune system. It almost stopped it at the placenta. That's not the case necessarily for Lyme, but I followed some of these women and the children, and some of my do telemedicine in the kids in the background screaming and running around and, you know, completely healthy.

And I'm kind of wondering and this is an unknown question, why it's not being transmitted, but the pedes I don't even think the pediatricians are watching for it.

And yet my concern is, you know, about Barts now showing up with different cancers, inflammatory breast cancer, melanoma, God knows what this organism is doing later in life.

Right, to the young girls that are being born. And yet this is like an infection that almost no one is talking about. And just as you're talking about, we don't have enough information.

Here's a huge one. We don't have information on that maybe, you know, is transmitted or is happening in pregnancy way more than we realize. Right. And I believe that's the case.

And actually the who I would put as the world's expert, I would even make an the universe is expert on Bartonella at right. Sure. It's right at North Carolina State University and his whole team and the Colon Foundation is funding.

You know, they funded this whole Bartonella initiative for what what it's going to take to, you know, to answer that question, are animal studies, right?

So it's going to take a lot of funding to create the study that shows that ticks can transmit. It's not it's one thing to have the for the ticks to carry these microbes around.

Right. It's one thing.

Prevention, treatment, and testing resources

But what we're lacking is the evidence showing it goes from the tick into a new host. And that's where everybody, you know, it's like, oh, it's not tick transmitted.

But again, it's a story of we don't have the data, so we can't say it doesn't. You know, I don't feel comfortable saying it does. But I can tell you that a brochure says, you know, I'm not I can't say it directly, but it's you know, it's definitely suspected at the.

Yes, I think it's more than suspected at this point. And the same thing with transmission during pregnancy as well, because, again, this is a thing that is in the blood.

And when you listen to a brochure of talk, it's not just in the blood name. A tissue Bartonella can be found there. Right. So that that is another one of those microbes that has my greatest respect and also a lot of fear.

And I hate the thing, you know what I mean? It's just like, really, it's just like as a micro, as an organism. I was like, wow. Well, you know, how remarkable is this?

And on the other hand, it's like, you didn't have to do that to my kid, you know, because my, my daughter also, in addition to Lyme, also has Bartonella or did you know, the good news is and I'm hoping by the end of this year to have a randomized, controlled trial, multicenter, randomized trial on this.

But the Dobson protocols we've been working on for the last eight years, this last tweak to the protocol using a six day high dose starvation pulse with 400 of DAP zone, 300 of methylene blue twice a day.

It looks like for the best. I'm saying I'm writing up three case studies now where two of the case studies are more than one year in full remission. Bartonella fish in the blood.

Horrible bark case. The third one just finished her sixth pulse. She only did two, six, eight pulses. And I spoke to her about a week ago, two weeks. And she's like close to 100%.

So what I'm finding is because Bartonella is a persistent bacteria under biofilms the way Lyme is. It took a couple of

years that it was Hopkins. That kind of gave me the clue to extend the DAP zone to six days from four.

I will tell you. Absolutely. These two week pulses are now doing it. And one of the things I'd like to do with this randomized trial is a fourth arm where I could get enough money and I'll share.

I'll speak to the Komen Foundation at some point, 50 people on the regular protocol of nine weeks of daptone, right, 50 people doing a placebo, same antibiotics, just not taps.

So in a placebo, a third group as a just a control group like Blackwell Doxy, but a fourth group that never does. The nine we dap zone only does two week DAP zone pulses from the very beginning.

And recently I had a woman whose Bartonella was fish positive in the blood. She said, listen, I'm a university professor like you. She said, I cannot be sick for nine weeks.

I'm teaching students. I said, go ahead and just do the two week protocol. She spoke to me last week. Huge improvement, just with six days. So now I'm wondering, maybe we don't even need the nine week protocol, but I'm going to need a randomized, multicenter controlled trial by placebo, etc.

so I'll be sending, by the way, I'll be sending the study to you and to Ben Beard from the CDC and IDSA members, just to make sure I've got this right.

But now I'm thinking a fourth group should be added, because I'm starting to see people that did not do the full protocol and they're still getting benefits.

So it's interesting. As time's gone on, Bart is the one that ultimately stimulated me to think about this. But you really want to clear these infections before pregnancy.

So any women who are listening to this or thinking of getting pregnant, please check yourself for Lyme relapsing fever. But BRCA Bartonella earlier and a plasma Rickettsia tularemia Brucella.

You've got to check yourself for these before pregnancy. Just like what you know the GM would say check for measles, mumps, rubella, hepatitis, etc. this is just really what should be a screening test right now for pregnancy.

Yes, it should be. Yeah. And for that study, you know one thing that I always with the antibiotics these bacteria are so tricky. Sometimes the antibiotics just send them into a I'm just going to sit here quietly and hope nobody notices me.

They can reactivate just like tuberculosis. Just like syphilis. Over time, these bacteria do that too. So in that, you know, as you're doing it, follow up for as long as you possibly can because that's important information to know.

Yeah. If I can get the follow up for a year, a one year follow up would really be what I'm. So it'll take a while to get it published, but I think it's going to answer a lot of the basic questions.

What I just have to figure out when this finally happens is how to prove to the other side who doesn't believe in chronic persistence that because that zone is an anti-inflammatory drug, you could, you know, call tetracyclines and macrolides have an anti-inflammatory effect.

How to prove that this is not just an anti-inflammatory effect, right. Giving them help. But but actually is leading to because I am seeing durable remission.

My wife is this point going on about 44.5 years in remission and lower dose stops on 5100 helped her. But it wasn't until she did one month at 100 twice a day that she finally went into long term remission.

So thank God for the university researchers who've has said, hey, biofilms are playing a role. These are persistent bacteria like TB, right? It gave someone like myself all the clues that I needed to kind of move ahead and and

figure out some of this, right?

I mean, when you say tuberculosis, people have a whole, you know, providers, right? You have a whole different perspective on what you need to do about that.

Then if you say strep throat, right? Or even, I mean, unfortunately, Lyme was kind of put in that it's an acute infection. You take the antibiotic, you get over it.

That's not at all true. It's definitely in this other class. But you say stuff like that and a doctor would know the difference. It's like, oh, okay, so we got to do something more than just the standard three, ten days, you know, and that that actually at this moment, because the recommendations are not there yet.

You know, that's up to the individual providers. Right? Right. You know, the one big question in pregnancy, which I've not been able to answer, I don't know, and I haven't really seen a lot in the literature is a couple of my patients and not a lot.

It's only two that I can think of. Out of the 100 plus, their kids are autistic and the autism rates, as you know, have gone from like 1 to 450 down to like something like 1 in 38.

Right now. I think there's a big environmental component from everything I've seen from Harvard University and UC California-davis. But what was interesting is one of the nurse practitioners that worked for me earlier on.

She decided to use a very low dose of DAP. So in just 25 and one of these kids and the kid's brain woke up. And in Europe they are finding in some of these autistic kids where it was transmitted and they thought it was congenital transmissions.

At zero, Max was helping some of these kids, their brains to wake up. Now this is again, it's one of these big holes, I think, in the research and literature.

Right. As far as like why with pregnant women, why are the autism rates going up? Is Lyme contributing in part to it? I believe it is, having spoken to some of the autistic doctors, but these are a lot of the unanswered questions in pregnancy. Right?

We need because what else do you tell a woman who says, listen, I want to have a family. And I'm saying to her, you may want to consider and acetylcysteine and speak to your OB, Joanne, about glutathione to pull these environmental toxins out, because we need a Framingham study, which we're not going to have in our lifetime to have a control group to say, let me give some women detoxification to pull these chemicals out of the body and not give it to another control group.

But we're just not going to have this information in our lifetime. So how else can we protect pregnant women, right? Apart from the multivitamin and folic acid and fish oils and everything else, we're doing all right.

And not just the pregnant moms, but their babies as well. Yeah. Yeah. So so as far as screening the moms, we got into this a little bit before. If you were having moms that you were suggesting, listen, you want to have a family, what test would you do yourself to like screened for for tickborne any specific ones you like?

I'd mentioned the couple earlier. Yeah. Well, you know, so some of them are more accurate than others, right. But they don't get order. Like for example, you mentioned the fish test, right by Basia, but Basia is in blood, so you could actually see it in a stain.

Blood smear. Same with Bartonella. You can see them at certain stages, but you enhance that effect with immunofluorescence or other technologies. You can directly detect them.

And you know, that would be, I think, for everything other than Lyme disease or actually most of the really, I think that would be the best test to perform right.

Some kind of fish or some kind of, you know, even PCR, I think would provide value more value than just standard serological. I wish, because it doesn't a serological evaluation doesn't tell you if you have an active case or if it's just you had it and you got over it and everything's great, you know, when in fact, with, you know, the research that Johns Hopkins University is doing, it's the group that doesn't, you know, that doesn't develop the strong antibody response for whatever reason.

They're the ones who are going on to have long term chronic problems. They're the ones that are impacting. And I imagine that would be for their kids to impact their kids as well, the babies that they might be having as well.

So Lyme disease is still tricky. It will remain tricky. And like I said, our test will be a step that could possibly be used as a screening test. There's a lot that I can't.

I probably shouldn't even say that out loud, but there's potential. There's a lot more to do, but there is definitely going to be potential there to say, okay, you have a Lyme disease or had.

And knowing that these bacteria remain present for a very, very long time. And I mean, at this point, the evidence is there. It's solid. They're there.

We don't know what they're doing exactly. If they're the if they're causing inflammation or if it's just the our response to them being present, like toxins or all the things that are causing it.

But come on, they they're definitely there. And I think Monica Ember's research seal, you know, that door should be shut. It's like, yep, they're they're the present.

What are we going to do about it kind of thing. So and one of the things about the testing, because, you know, you do a lot of great talks about the testing and how inaccurate.

One of the things I hear from people all the time is I went to my doctor with a positive exam, CDC positive Western blot or immuno blot, and they said to me, oh, that's a false positive.

But in the studies that we published, 45% of the chronic Lyme patients had AGM, CDC positive Western blots or immuno blots. Hopkins had the exact same figure.

And Nicole Baumgartner talked about in the mouse model. We've seen it that when braylee invade the lymph nodes, they get rid of the B-cells that make antibodies, right.

So you're not getting good IgG responses. So that's something that especially the pregnant women need to be careful of. Be careful. If your doctor says you have a false positive Lyme test because a 23 or a 39 band, especially on an immuno blot, these are specific bands.

It means you've been exposed to a Borrelia species at some point in time. Yeah, and if I can just speak to the exam thing, did you see Bulger's most recent paper that they said, you know, and it was, you know, it's just like, see, because that exam in some patients goes up and stays up.

And the problem is the traditional interpretation of the immune response when all is perfect and everything is great, is that the exam levels go up, but then go down.

Right. So it's an early response. That's it. And then the IG goes up and stays up. Well that's great. That's the textbook approach. But these bacteria do not read those textbooks.

Or if they do they're doing their best to change up the rules. So with Lyme disease with Borrelia burgdorferi infection, the organ levels should be included in the diagnostic interpretation of the test.

Because and it's also shown that, you know, the people that have this, the persistent symptoms are the ones that tend to have these higher IGF levels.

Now, what causes that? I don't know, but the fact is, is there and having an exam month after you had the tick bite doesn't mean it's a false positive at all.

It doesn't mean that and that needs to be fixed. And that just that last paper, I don't know if you saw that particular paper. No, I, I did seem to think and I was like, yes, that right there we need to pay attention.

And the other thing that makes it confusing, I think people forget this. When I was first publishing, when the article we published in Health Care and the International Journal of General Medicine in 2009, precision Medicine one and two, we showed that there's immunosuppression that happens in these patients, that group of 200 people.

But 20% of those people had chronic variable immune deficiency with low IgG levels, 85% had subclass one and three deficiencies. So if you already know that some of these people are immune deficient, you're not going to be getting great antibody responses.

And it's worse with Bart, the paper we published four months ago. The more bite species you have, the more immunosuppressed you may be. So we're looking for antibodies without realizing that the underlying mechanisms of these bugs, whether it's Lyme alone, lemon, Bartonella or even Lyme, Bartonella and Covid COVID's causing havoc with the immune systems.

Also, there's a lot coming out now about immunosuppression. It's kind of like we learned things in med school and we think somehow, you know, if let's see, if we don't keep up that they're the same.

But the world is changing and you got to keep up with the literature. But certainly these antibody tests are not the be all and end all we would hope them to be.

That is correct. And you know, like I said, I think there is a place for this obviously for because it's a quick and easy test, it's going to be accessible to everybody.

But the interpretation of the results you can't rely on, like I said, what the textbook said in 1963 is not the space we're in today. We know so much more.

And this is one of the things that we know needs to be included, and it needs to be updated. So yeah. Right. So, Holly, we're coming almost to the end of our our talk.

So question for you. Again, can you tell people how to get in touch with you if they have questions and also any other final comments about Lyme in pregnancy, in the testing that you think is important for for people out there to know?

Sure. So easiest way to get in touch with me is through my college email which is a h at Suny, hcc.edu so that I'm happy to answer questions or direct you to other resources that way.

And, you know, just with regard to what the state of the sciences and the best update is, keep your eyes peeled as soon as that paper is published. You know, I'm going to start doing my best as as most of the Lyme community will to make sure that it is widely read.

And notice, because this is a proceeding of a scientific conference at the Banbury Center, you know, it's not like a bunch of people just sitting around chatting about it.

You know, we we did the deep dive and it's not like just you and I sitting around chatting is what I know, but that, I mean, you know, there's that level of expectation in terms of this, you know, the standard, it's got to be reached a certain standard and it reaches a standard that would be a great resource for people to pay attention to, especially health care providers, just because they'll see all of these studies.

You know, and I'm not talking about three studies, I'm talking about hundreds of studies where this this whole area has been investigated from the diagnostics, from the responses to evidence that it occurs both in animal models

and in human models, all that will be in that paper.

So that's that's what I'm going to just say. Keep your eyes peeled for that. Right. So we'll we'll be looking out for that. And and usually I post all of the updated research on my Facebook page that you have otherwise on the social network site that you, you post things that people can watch for or on this particular topic.

I think the best would be the Lyme Hope, which is Sue Faber in Toronto, Canada. Who seriously is the driving force behind all of this? She has done so much.

The other one is the Tick Borne Disease Working Group report, the 2022 report. In the, pathogenesis part of it. This was one of the issues, a major issues that they did that they did a deep dive on as well.

And all of that is documented in that subcommittee report. So I would highly recommend that as an excellent resource. There's over 200 references in that that went into that making that report.

So it yeah, if you still have questions about it right now that would be a great place to go. Look. Great great great information. So thank you Holly.

This was this was a great conversation. I'm sure this is going to help a lot of families and women out there who are looking to get pregnant or have been pregnant, kind of wondering about their child because it may have happened and some of the mothers may not have even realized it's happened.

So this is kind of one of those things we really need to elevate and highlight for the health of the children of the world and the future populations on this planet, because this is an emerging epidemic, right?

We have to be so careful how it should be treated, the same way syphilis has been treated over the years. Right. It's a concern. It's a real concern. Women are at risk. They need to know it.

Yeah. So again thank you so much. For those of you who've been tuning in, I'm your co-host at this Doctor Hawk healing from Lyme disease, doctor Richard Horowitz. I'm with doctor Holly Ahern.

We've been discussing Lyman tick borne diseases in pregnancy, a really, really important topic. So thank you again for joining us, and I hope to see you soon on another doctor's talk in the healing from Lyme Summit.

Thank you so much.