Introduction and Background

Welcome to this episode of the Mycotoxins and Chronic Illness Summit. I'm so happy to have with me today, doctor Mark Sue. He's a board certified family medicine physician.

He's been in full time clinical practice for 18 years. He's in Boston. Mark, I'll let you introduce yourself to our audience. All right. Well, yeah. Happy to be here.

It's great to, kind of fun to have this chat with you. Yeah. Yeah. So should I come? And I'm bored providing family medicine. You know, I guess part of my thinking background, maybe important to say that, my parents both immigrated from Asia.

So while I'm, I'm conventionally trained, and my dad was actually a researcher for a pharmaceutical company, like, origins are pretty holistic, as my dad is.

I always think about my dad doing research in the dean of our house, at night, doing research on pharmaceutical work, but with an acupuncture needle in his wrist or in his hand because he's got headaches, you know? So it's.

Oh, they talked about it. They talked about nutrition a lot. I mean, you know, I was a kid, so I didn't really believe them, but they talk about nutrition a lot and, you know, and I was always like, well, how do you know that?

Oh, we that's what we always learn. It's like, well, okay, that's not good enough for me, you know? But. For interesting, kind of a, broad spectrum background, you know.

So. Yeah. So you're interested in what's biochemical and also what's, what's holistic started from when you were young age, just at home. I love it. Yeah. I think I'm just generally an inquisitive person.

I ask, I ask way too many questions for, you know, my monkey brain's always going, asking questions, but, I think it's just it's just cool looking back that I had those influences, you know, that, I think my parents were also my dad, especially you just, you know, very reflective and inquisitive in general, but but from the, the health medicine science background, it wasn't a one shot deal, a one angled, you know, blinders on kind of approach, even though he was, you know, in pharmaceutical research and even though I was in conventional, medical school training and, and, and such.

So it's, it's kind of a cool background, I appreciate it. Yeah, definitely. It shows in the way you think. When I hear you, when I hear you speak. I see I board meetings, I can tell.

Yeah, you've got you've got both angles. You're grounded in both. And I love it. Yeah. If you can fix that for me any time. You know in my life that I'd really appreciate that. Right.

Turn this off a little bit. Turn it down at least a little bit. Yeah. So let's talk about the zoom in complex chronic illness. Sure. If you can define for our audience the difference between zoom and in what's inside of the system.

Yeah. So, you know, some people may have heard, most people probably in the public haven't heard the term exposome. A lot of people in, clinical practice don't use that word much at all either.

But, certainly in research it's used and I think in deeper functional medicine levels, a lot of people are familiar with it. So, you know, the way I talk about the patients is, you know, believe it or not, I sometimes do bring up that term.

It depends on who it is. Right. But I say, hey, look like everyone's heard the word genome, right? That's like the study or discussion of all things genetic.

Everyone's heard the term microbiome, so these are all omes, right? Microbiome to study and or, discussion of all things during the to do with the, the microbial environment in our gut.

Understanding the Exposome

So exposure, as you can kind of then translate is it's the study or discussion of all things to do with, exposures. Right. So, in a, in essence is another word for environmental exposures.

And, so I'm selective about when I might use that term. But it's a, it's a really encompassing term. And it's I think it's going to be used more and more.

I know, for example, I was at a conference in October with, Jeffrey Bland, Jeff Bland, godfather of functional medicine, at his, Personalized Medicine Life Institute.

I think it's called PMI. A conference about it in October, mostly to do with, gut health matters. But yeah, he talked about exposure an awful lot and, you know, point to a lot of research articles talking about it.

So ultimately it's about environmental exposures. And the trick there is, you know, if you'd asked me ten years ago, 12 years ago, what are we talking about?

You know, I might have been thinking about things that, you know, you've you've dealt with a lot more there in California than certainly we deal with in the East Coast fires.

Right? Forest fires. And, obviously people think about pollution and cigaret smoking, stuff like that, but there's so much more in the exposure. It's, it's, it's it's impossible to even start to get your arms wrapped around as to what we're talking about when we talk about the depth and breadth of the explosion and then when we start thinking that even the exposures when we carry around in our gut is part of the exposure, because we think it's easy to, for me at least.

And I think a lot of people to think about stuff outside of our body. But what's inside our body, in the gut is also not really part of our body, really.

So that's actually part of the expose. On to. So it's a it's pretty broad term. Yeah. It's a it's an interesting concept, a difficult one for people to grasp.

Even the think that these bugs that are inside our body are actually not inside our body because they're, they're, they're, they're, not intracellular matter.

Yeah. They're not made of ourselves. Right. Anything basically, for me, it's like anything that does is not made from us. And I think you, you alluded to when you said bugs, it reminded me that, you know, a lot of us, you know, a lot of our colleagues will use the phrase like bugs and toxins, right?

Bugs and toxins. But let's elaborate more about that. So I'll just stop and tell our audience a little bit about bugs and toxins. So when we're talking about bugs, we're talking about all kinds of infections, parasites, mold, bacteria, viruses.

We're talking about toxicants. We're talking about a whole plethora of them. They could range from heavy metals like mercury, lead, arsenic, aluminum, cadmium and more, and different chemical compounds perchlorate, PCBs, different chemicals, solvents and insecticides, fungicides.

So those are all, part of what we're considering as the Exposome might tell us more about what else you would consider the, the exposome. Well, for me, I like I try to think in categories so I can keep mental sanity.

Right. The plethora of information, you know, on multiple levels in life, especially work. But, so, yeah, I mean, a lot of things you brought up are great.

Those are very common and great examples. For me, I think one of the important things to think about, first of all, so in the context of this summit, in the context of this topic, what whatnot, there's an important piece to talk about.

There's an important delineation to make between, you know, acute and chronic, either conditions or, yeah. Inflammation. Right. Acute and chronic inflammation, acute and chronic conditions.

So if I'm, if I get a sunburn as an acute exposure, you know, trigger. All right. That's fine. But I mean, I don't really need to get into the depths of what we're starting to get into.

You know, what the the summit's about, you know, so when we're talking about chronic inflammation leading to chronic conditions, then, we can knock out a lot of acute expose, triggers, right?

Like a sunburn. It may trigger some people who have chronic conditions, but that's not. That's not so much what we're absolutely talking about, right?

We're talking about things that people either have chronic, persistent, recurrent exposures to which might be external to our physical body, or they might be harbored inside our body in whether it's gut or elsewhere.

But it's not belonging to us. That's the bottom line, right? So for me, I think about several subcategories of the exposure. So one that you already talked about there is microbes.

Right. So bugs. So this could be, as you said, I think of, bacteria parasite, not in rank order, but bacteria, parasites, fungi, which covers mold and yeast.

Why am I blinking? Well, actually, if you think about the, bacteria, fungi, parasites. And then actually, I guess the reason I think about it as more than those three is they're largely the big, three families in the, think about microbial, types.

Bugs, Toxins, and Chronic Illness

But I think of things like, tick borne disease as a separate topic because, number one, it can encompass various, pathogens or bugs from those three categories, as well as the fact that, it just there's certain subtopics in this expose on that sort of, weren't thinking about independently because they really play a big role in people who have chronic conditions.

Right. So you got the microbiome stuff. Sorry. Go ahead. Oh, I would absolutely agree with you. Okay. Yeah. Yeah. Good. Glad we're on the same page. Yeah, yeah.

So so we got the microbes, right? And then we got you. You alluded to non what I'd call like non biologic toxins. Non bio toxins. Like the heavy metals.

And then I think of bio toxins. So mold toxins the mycotoxins which is a you know huge piece of what the summit's about. And then we've got sort of like in my mind I sometimes think of as a miscellaneous category, but, you know, we've got emfs and we've got, well, there's such a variety of, of other pieces, but for me, there's five big topics, five big sub topics, I think about that go within the explosion and then and then within all those five subtopics, there's so many further divisions and delineations.

And the bottom line is, most people in conventional medicine experience are not aware of all the tools that we have in our toolbox to be able to assess those problems.

That's that's the real problem, right? And that's the real point for me in having sort of a chart or a checklist and thinking about what are all the things that we could look at and what, what, what are those things?

Has this patient already been looked at or looked at accurately? You know, and if they haven't, then I don't want to miss this opportunity on some of those, especially the bigger dog topics, you know, that can play a bigger role than

others, right?

So it sounds like you're casting a wide net when you're when you're testing. I know I am, yeah. You know, in medical school we're taught don't over test and when it's when it's patients who have an acute issue sitting in front of us.

Of course, we're not going to do that because it's just going to lead to results, which can often be meaningless or not the right time to to go into that. But when we're talking about people with complex chronic illness, there's so many different factors like you just talked about, Mark, and they all play off of each other and, and so we have at our disposal all kinds of labs.

So when I say play off each other, I'm thinking about how, molds fungi sequester metals a lot and parasites sequester metals. Maybe they sequester other, toxicants as well.

I haven't seen any research on that, but maybe maybe that's going on. I don't know, but but I know that there's there's so much, there's so much connection in all of these different pieces of the of the, of the exposome within our body.

And, and so we have this testing at our disposal. And so I do cast a wide net, because in most of my patients, I'm finding that they have a plethora of infections and toxicants.

And I know that's the same for you. Tell me, Mark, how you decide where you're going to go first, when when you find all these layers of, of issues with the patient, how do you decide what am I going to treat first?

Yeah. You're thinking about, are you, okay for treating. All right. So yeah. So I think that's a, you know, key point you just mentioned is, you know, casting a net for, you know, so for me, and I think it sounds like we're very similar in that regard.

It's a, you know, we we both know not just data for the record. Like, it's impossible to identify all the different exposures, problems that, we may harbor. Right? I tell patients all the time, look, we are we are all reservoirs of bugs and toxins.

That's just the nature of the beast. You can't get away from it. We can't live in a bubble. And we're not designed to. It's not. It's not the intention of life to be segregated or and separated from our environment.

Right. But we got to build a, you know, so we are all reservoirs of bugs and toxins and that's just going to get greater. And that's going to become a greater and greater.

We're going to become great and greater reservoirs as we get older, just by the function of time. Right. We're going to be constantly exposed. And so we're going to, we're going to accumulate more and more toxins over time.

And so, it's impossible to test for all those things. And not all things are warranting testing as far as we know. All right. So, so then when we cast that net, we that's a big part of constantly learning and networking for us is, you know, what is what's on the horizon, what's what's becoming, what's evolving as a concern?

What is, being seen and rising as, threats of awareness and or new threats, I mean, as expose on, sub topics. So, once, once we have that, once we have for me, once I have a wide enough, let's call it a wide enough map on what the expose, profile consists of for that individual.

Then we're moving to your question, like, okay, now that we have all these different pieces, then how do we decide, where to where to start, right. How to sequence it out.

And, you know, that's where that's a, that's a huge, dilemma and discussion for all kinds of practitioners. And I don't know that there is a right answer there. Right.

I don't know if there ever is a right answer. I think I always. Right. Yeah. I mean, that's that's like the Holy Grail, right? It is. And I don't think that's ever I don't know if that will ever be solved.

To me, that's almost like solving the purpose of life or something. I mean, there's just I agree. Yeah, there's way too many configurations, way too many variables.

It's, it's we'd need a, you know, a mega, mega computer, you know, on steroids for, you know, exponential fold, I mean, for each individual and for each individual person.

Right. Because what might be a variable in you could be, could have a different effect in me. Yeah. So variables and different people and they, they play different notes.

This is highly personalized right. So putting all that together is like extremely difficult right. So for me and I think we're all the same. There's, there's, there's no cookie cutter.

Right. For sure. There's no template. But the way I think about it is, and I know not everybody's a, sports fan, so I don't mean to go off on that, but I think a, I think about it for myself as, Phil Jackson's Chicago Bulls during the Michael Jordan era.

They had this they had this, they had this system, offensive system they called triangle. Right. And the thing about it was, you couldn't do you couldn't run this with any team because you had to have people on the team who were basically smart enough to kind of figure it out.

Okay? Because it's not a cookie cutter template. It's not just, here's the play and this is what you do. This is what you do, and this is exactly how it's going to go.

No, it's a flowchart. Right. So the triangle offense was we're going to have these three people set up in this area in this space as a triangle. And then we're going to start out this way.

But depending on what the defense does to us then we have to read and react. And then we create a play off of it. So you got to have smart enough players to know what the defense is doing and then be able to communicate with each other to say, okay, this is what this is how we're going to do it.

And then they get used to each other and create chemistry, etc.. Right, right. So as evidenced by Phil Jackson trying to take that to other team subsequently, it didn't work out so well with, you know, subsequent teams.

So just seeing I think of it like that's a flowchart. So there's, there may not be a cookie cutter template, but there's a sort of, baseline foundational approach as a starting.

I don't love the word algorithm, but something along those lines.

How to Prioritize Testing and Treatment

And then the first question for me, well, the first, the first few decision making points are based on patient specifics that are kind of like non-medical, if you will.

Right? So for me, these are big on decision making. Number one, how severe is a person's symptoms. And that usually correlates directly with how urgent do they feel they want to, you know, address the problems.

Number two is what's their philosophy or bent on pharma versus non pharma. And then number three is their financial situation. Those are three really important ones.

Absolutely. When you're sitting with the human in front of you, they're going to have a variety of different answers for all those three. Those three go through my mind to yeah, they're huge.

Because, if someone's if someone says, I am desperate and I'm in a corner and don't worry about the money part, you know, with cost of testing or treatment or whatever, just give it to me, like, all at once.

I'll do it all yesterday. Yeah. We're not going to do it all yesterday, but you know that I'm going to start from that end on creating a, you know, regimen. Right.

All right. And then if they can all the more tell me I'm all like, don't talk about pharma. Great. I don't have to think about those. Right. Or if they're saying I'm open to both or, you know, cost wise, if you're going to be racking up a bunch of things, then I want to use my, you know, copay is going to be cheaper.

So let me let's talk about pharma, whatever. You know, it just exactly because there's too many variables again. So creating the decision making those three things are top three for me.

And then I think the next topic is the clinical topics. Right. So as we just said, and I think everyone, who participated in this summit, people we know as colleagues would agree there are certain topics that are sort of like big dogs and others that I consider sort of more peripheral.

It's not always the case, but generally speaking, it's going to be the case, it seems. That's I think it's largely based on clinical experience, right, with a lot of practitioners as well as, just a scientific concept on how much these particular subtopics within expose, can really impact mitochondria and impact immune system and etc., etc., how much they can become systemic versus just focus to a certain part of the body.

Once there's some exposure. And then of course, another big part about that with the clinical topics is, some pieces might seem like they're bigger dogs.

Then than I would have initially assumed. With that, with any given person. But it's based on that person's, clinical experience today having prior to me seeing them, if, you know, if that's the case.

So, you know, I, I think everyone, you know, the nature of the summit mycotoxins, you guys pick that topic, of course, because it is a major topic and people who, practitioners who know about it, are seemingly in universal agreement that it's a, it's a big dog topic, right.

And then lastly, for me, it's also it's also very much about the patients preferences, you know, what resonates with them. So it's a massive amount of information to take in, to collect, to take in, to interpret and then create a sort of map and game plan.

I like, like you use the word map and that, that term, that, that concept. But once, I throw out some kind of, option game plan for the patient, then usually they're going to usually they have some more often than not they have some kind of resonance about some topic or another.

Right? I mean, you and I have come across a lot of patients who we're talking about mold, mycotoxins with good reason based on lab testing. And they just can't they just can't buy it.

Right? They're like, my house is only seven years old. I don't see anything. It feels clean. It smells clean. No one's ever talked about it. Everyone else in my family is fine. Like, how could it?

How could that really be? Hey, I might I might be totally convinced that's the number one topic and have all the data to suggest it. But if the patient is just not going to, you know, agree agree to it, then okay, well, you can only lead the horse to the water, right.

And so mark them to other topics and keep talking about it. And maybe we'll maybe we'll come back around to dealing with it later. There's such a fascinating discussion for me because it's in this summit.

I haven't talked to a doctor yet where we've talked about what goes on in the room with the patient and what goes on in the room in our minds when we're talking with the patient.

So thank you for going there. This is yeah, it's just awesome. I mean, the stuff I mean, for me, that's that's what I love about what we do, you know, as clinicians is, is the connection with patients, right?

I mean, yeah, exactly. I'd like to believe I, I have I like to believe I still have just as much fun, you know, and fulfillment, I should say connecting with patients just about, regular, conventional topics, you know, because we do here, we do both primary care and consulting.

But but yeah, when it comes to this, you know, more challenging stuff, it just takes a lot more brain activity and, you know, like, from gymnastics up there to kind of sort out the decision making with patients.

But they really appreciate that. They do, they do. And then when they get involved in that, in that decision making process, it's huge sort of saying, okay, here I'm going to I'm going to do this for you.

But because there's so many variables, we have to go through each of them. Each of the tests. And you're so right. The finances, the lab testing alone can be $3,000 to 5000 or more, depending on what you're testing the first time you see a patient.

Because none of this is covered by insurance or the large majority isn't. So that that really plays in and that that also plays into, well, plays into diagnostics and then decision making.

So there's a lot. Yeah, yeah, yeah. As you and I both know, it's, it's, it's essential, especially on these bigger stake topics where it's chronic and it can be expensive and such that there is by an otherwise I mean, look, just, just the practitioner patient, synergy and energy, you know, resonance is going to be a therapeutic factor for the patient itself.

So yes. Yeah, I can't understate that topic. So glad you pointed that out. Yeah. Thank you. I'm I'm really loving this discussion. Like yeah. So stuff. Yeah. Yeah.

So okay. If you're trying to account for so many different parts of the puzzle with any given patient, how do you know what treatment direction to take then?

Well, I think a lot of it is going to be again, there might be, an upfront, there might be an upfront, flowchart, you know, starting point for me. And I think, I think most people have like I said, most of us would agree that the mold, mold, toxin topic is going to be near the front.

Yeah. And. You know, you brought up the parasite topic earlier, right? That's a highly growing, a fast growing topic for me. So speaking on that, just you were asking, you're talking about, you know, parasites being reservoirs of, heavy metals.

And so, yeah, I just I was just educated last fall, at a conference. At a conference about, parasites being in data shown to be reservoirs of, at least Borrelia, Lyme as well as, yeast.

I'm on the hunt to see if I can if there is data about, parasites being reservoirs of mold organisms or mycotoxins, I don't know. That's out there. I think there's been some discussion that, or there's been comment to me that Doctor Clean Heart has, applauded that, but I don't think it's like published information.

So I don't have you tell us about it, but, you know, so again, back to exposure exposed. Like, I could be recurrently exposed to mycotoxins outside my physical body.

Or I could also be recurrently exposed to borrelia through a parasite in my body. Right. So that's a whole nother. That's a whole nother game changer for me when I'm going, you know, I'm talking to patients and they're saying how I haven't gotten any new tick bites.

I know nothing that I know of. I and I'm supervision about checking myself because I know that I may not feel it, etc., etc. and then now I'm suddenly going, oh wait, maybe you don't even need a tick bite.

And maybe that's why this, you know, is that a factor in why there's a recurring contract or, you know, that's just that's a game changer? Not only that, when you're killing a parasite, when you have a patient in Anti-Parasitic protocol, you have to consider that that parasite can be dumping Lyme.

It can then be exposing the Lyme as you kill the parasite, or exposing the metals or the funguses that it's sequestered is you're killing us every time we're killing any infection we have to think about, well, why does why is it that another infection comes bubbling up to the surface?

I think I take care of one, and I do, but oh, here comes another infection. Or here are here, your mental loads are higher now. So we've got a make that up.

So there's so much, unless I'm tenuously. Yeah. And maybe so beyond what we talked about to, you know, just a few minutes ago with, you know, bigger targets, big dogs versus peripheral topics and, patient preferences and resonance and, you know, making a little pit stop talk, point on the parasite matter.

Right. You know, I think I think, most everyone in the Eisai organization that we're on board with together, you know, are very aware of the mast cell topic. Right? So that becomes a huge topic.

Mark, will you tell our audience what I see? I is oh, sorry. So International Society for Environmentally Acquired Illness, and so, Mark is the vice president, and I'm on the, board of directors there, so.

Yeah. So it's, it's an organization geared towards, well, geared toward towards helping educate practitioners as well as create awareness and helping, helping lead patients or point patients in the right direction, at least with education awareness information.

Mast Cell Issues and Treatment Sequencing

But, you know, as the term they're environmentally acquired illness sort of, describes for itself, it's it's about expose them. Right? It's about all these potential environmental and then environmental exposures that lead to a secondary or acquired illness.

Right. And so, you know, mast cell topics, thanks to the founders, including current board member, you know, we actually have made, mast cell activation syndrome or mast cell disorders, a major topic because a lot of people who have these chronic, complex conditions have a mast cell disorder of some sort.

And so it becomes very difficult to treat whatever those root cause issues are within the exposure on until they at least have some manageable control over the mast cell disorder in order to tolerate treatments for those root cause problems.

So there becomes a big sequential topic, right? Right. So it's like we've got these secondary issues. And my patients there's your secondary issues here.

They say well I have mast cell. So like if you just treat my my infections won't go away. Yes. But we have to we yes and no. And this is where it gets a little a little sticky.

Right. We wouldn't want to calm down the secondary infection because over here is the driver and and if I start to treat the driver first and I can and sometimes I do, I pull a pull out the inciting event.

But the, the, the your immune system has already set itself up to, to be stuck in the loop. So sometimes you remove the inciting event. But the, the inflammation, continues the immune dysregulation continues.

So so what we've learned in more recent years is that we do want to work on the secondary issues, keep them as at bay as much as we can while we're treating the infections, because as we treat the infections or the toxins, they're going to be insults again to the mast cells like we talked about earlier, where we're, dumping metals or we're dumping fungi as we treat, it's going to insult themselves to flare again.

So coming. Right. Exactly. Yeah. It could be a back and forth. Right. And so there can be that dance that can be kind of difficult. Yeah. And I think the other common I think the other really common, sequential topic that we all come across, who do you know who deal with the mycotoxins illnesses is the matter of the, a lot of the mold by mold toxin binders cause a lot of constipation. Yes.

And so if a person's got Sibo, small intestinal to overgrowth, which I also personally think of as a secondary problem, right. It's not like it's usually a root problem in conventional terms, but it's caused by other root problems.

So I think of it as a secondary root problem. Yeah. But so just as you said, like you could expect, we hope and expect the Sibo condition to improve as the only the root causes.

But you may not be like oftentimes we can't get the root problem addressed in this case mycotoxins because the the treatment for the mold binders are worsening constipation resulting from the quote self.

So you kind of have to take a step back and do a sort of, preview or so, like the foreword to chapter one before you can start chapter one. Right. And so, so there's a few little nuanced situations like that and know there might be others, but those are those are two really common ones, of course.

Yeah. And we encounter them every day with every patient. I'd say. Yeah. So how do you keep track of your information? Is it in your chart notes? Are you are you literally making a flowchart?

Okay. Yeah. So, so for me, because I, because this, you know, monkey brain appeared like it likes to try to be comprehensive about all this stuff. I for my own sanity, I, I created a that's why I used the word map because I, I really think of I think of it and literally to me is a map.

So I've, I've created a map system for myself for, for my patients initially just for my own sanity. And then, I've since shared it with, people in practitioners in my office.

And, actually, I, I, shared as a poster at the, IFM conference in the spring and, was, unexpectedly and humbly. What's that? Would you be willing to share that poster to our with our audience?

Yeah, sure. You know, there's a is first time ever is the first time I've submitted anything to a conference for a poster. I mean, maybe anything I don't remember since the residency days.

And, yeah, I don't say this so much for, bragging rights, but more so that apparently it's well received and resonates with practitioners because I, received the, Attendee Choice poster session award, like three weeks later after the conference.

I love it. I was like, wow. Like, I didn't know it was coming. I'd just see a box come in like, I'm like, wow, I'm kind of flattered, you know? But point is, I, you know, for me, it was just, I was just kind of curious as to, how it resonates with people in general as a poster, but, I mean, there's so many stinkin posters, but apparently there's enough resonance with practitioners, but other practitioners that it was, that people.

It makes sense. Right? Like when I talk about patients, for their sake, for their data and just conceptually, you know, understanding self non-self are exposed environmental exposures.

And that regulation of the two. Right. Largely gut health. It just makes a lot of sense for patients. And at that high level, it's easy to start then delving into specific sub topics.

But for me to be able to keep track of, you know, as you and I know. Right, we could pick any one topic.

Tracking Complex Cases with a Clinical Map

Let's stay on the micro toxin topic just for, you know, that's the point of the summit, the large focus point, as you and I know the whole even just taking that like the the traditional search protocol or if we want to talk about the like

more Brewer protocol, whatever.

A lot of these protocols have so many steps to them. Right. Or they or patients take a decent amount of time to work through and see how they respond, etc., etc.. Right.

Well, what happens over two months, much less six months, much less nine months if they're also working through their environment and all that stuff. Right? Right.

And you come back to, you know, trying to touch base with what you were talking about nine months ago, like, help me. I'm going to have to like, excuse me, I need to go back to my chart, like rewind the whole node and all that.

So so for me, creating this map has helped me click off. Okay, what have I I checked off on? What were the results on those topics? How does that okay, so when I go back to I wait did we did we look at Lyme.

Really. Did we treat that aggressively? How long did we treat that for? It was only 2 or 3 months. They have like a side effect to that. That's why we didn't really do it. Or was it.

Oh no. We just on line. Oh they did with a previous practitioner. But no it's only for three months. Maybe we really like you know. Yeah I mean it's nuts right.

But this map really, really helps me like zoom in to the given topic we're working on now or the last three months or whatever, and then be able to zoom back out, right, and say, oh, okay.

Now I can like, remember these other pieces of the puzzle. I've got to see this map. Mark Rich. Yeah. So yeah, I think, I think it's on I think the, I think that, poster with the, the video talk I put with it, I will forewarn you that as a reflection of my monkey brain, it's it's much longer than I expected.

I wanted it to be initially, but yeah, I can, I can I can give you the link for that. Thank you. Yeah. So, so now we're converting it into an app. So, you know, for, for patients or for mostly for me, but for, for someone like my office and stuff.

So we're, we're, we're converting that to an app forthcoming. So it'll be we that we all need that app because I'm looking forward to it. We need those right now.

Right now it's like a lot of it's just on paper for me right now. Like we have our EMR. But because the EMR can't handle all that stuff like it's for us, it's we have our own paper map for each individual patient, you know.

Yeah. So when is this app supposed to come out? It's so there's already a beta version. And so we're, we're actually testing it out and how it's, working out with people, as we speak, so could be, I don't know, it could be really, really soon.

That's really, really exciting. Yeah, I think it's, again, a lot of it. A lot of it is just organization. Right? And a lot of it is helping us maintain the whole picture and being able to again, zoom in at times and zoom back out without having to rewind the whole story and fumble through our notes for the last year or whatever.

Right. That's fantastic. Yeah. And so one thing I really don't know much about you at all is that you derive a lot of your thinking from your wife's work as a researcher.

Yeah. So how so how does one tell me about your wife's work as a researcher and how how that influences your thought process? Yeah. So it's it's really actually pretty fascinating stuff where it's kind of, it's kind of humorous that we were actually talking about this with some friends socially yesterday, and it sounds geeky when not, but she was like, yeah, during, you know, early Covid, like date night at the sous, Mark and Jessica are sitting on the couch watching this like 30 minute, lecture on the immune system from Sam Janek.

You know, I mean, she didn't know who Doctor Janik was, but, you know, for me, I was like, you got to see. You

got to see this. This. She's asking me as a researcher, can you explain blah, blah, blah, blah clinically.

And I was like, well, I knew this from this lecture. Let's just watch it again, gather again so I can refresh it, you know? And so, so she's in metabolomics, right?

So back to like, the metabolome. So we talked about the exposure, the genome, the microbiome, the exposure and now the metabolome. So what's that? That's that's the study and discussion of all things that are basically metabolomic Metab metabolite metabolic markers.

Right. Which is it's kind of a generic term. To me. It means a lot of stuff. But the way I describe it to patients is they have these supercomputers that are sometimes higher functioning, a lot of times higher functioning, even government computers, they basically take mounds of data that are and they just throw it up on the wall and do these crazy computer calculations and algorithms, make connections and connect dots to make sense of what is a common pattern for a given patients to either diagnose or assess their status, or, you know, of treatment, etc., for some condition.

Right? Right. So the example I often give patients is this they've got one study and I'm and I don't have this exactly right. So forgive me for that. But this is the way I presented.

They even have published a study where 18 to I think it's 18 to 20 3 or 24 year old boys. Mexico, not just Mexico, but a specific province of Mexico. If they have a specific gene and they are vitamin D deficient as defined as below a certain level, and they have a, an environmental trigger of, I don't remember what type, that age range it turns on and up regulates that gene such that because of the vitamin D deficiencies role in it, they become massively obese fast.

I mean, really fast. And there's basically no way to turn that off. Unless you address first the vitamin D topic and then you take other steps. I mean, to me that's like, you know, how many times do we think about where we hear patients say, well, like, does it really matter if I quit smoking or, you know, anybody like, like my brother smoking, but like my brother, my brother keeps saying, well, Uncle Charlie, like, smoked forever, like two packs a day for 20, 30 years.

And he never got lung cancer. Right. And how come other people who don't smoke get lung cancer are people who only smoke like two cigarets a day? Get lung cancer, right?

It's so much more complex, so much more so this is like their way.

Metabolomics, Research, and Systems Thinking

So she's, she's, she's at Harvard Medical School with, Brigham Women's Hospital, and she is, I will dare say I really don't like bragging. Self-promoting by brag about her.

She is, like, I would think, like top five. Top three in the world. Like, she's currently the president of the International Metabolomics Society. She's doing research with people who are the top of the top of the world, top of their industry with metabolomics.

And the cool thing is they find stuff that is very functional medicine oriented. Right? The more she learns about functional medicine, the more she gets excited because she's like, wow, that's like what we're doing, right?

She'll tell me, I go to a I go to a conference. It was the, 2018 Interior Function Medicine conference on the, on autoimmunity, the connection between guts, genetics and the environment.

Something like that. And she's she's going to let me look at the speaker list. She goes, oh, the guy, the top speaker, Alessio Fasano I've got, you know, I've got grants with him.

Like, you know, he's the guy who basically founded the whole topic of gluten in Ireland and intestinal ability. Yeah.

We were doing this research grant with these people of Johns Hopkins about the microbiome we're studying, like, how does the microbiome, from affected by the, lead to issues?

The, the babies, both in utero and then in the first year or two and three years of life. And what is the risk for developing allergies, asthma, blah, blah, blah, blah, blah, right.

When we talk about, like, side effects, stool test, right? Yeah, I map or whatever test looks at the gi function. She's like, oh, that's just like the kind of tests that we are studying, right.

And but then the frustrating part is, as you know, you know, bantered about, you know, just prior to recording this call, like that research is going on here in the heart of Boston with like this I in mighty like, ivory tower thing.

Right, right. And then you got those of us doing this functional medicine on the clinical side that that side of the spectrum. But that that band between those two entities is so huge and so vast and so seemingly impossible to bridge.

It's a really, like, hilariously frustrating but entertaining to, observe phenomenon that she and I have because she she could literally her and her group and the people they do work with, they could literally translate what they do into a total functional medicine world and advanced functional medicine, you know, light years very quickly.

It's just who's got the money, right? Who's where's the money coming from and who's got the interest and blah, blah, blah. So, so a lot of what she does, it's not just about the findings and not just about that sort of, it's about the thinking because their thinking is so much more, you know, objective about, look, we're not going into this with a presumption of this outcome or that outcome.

We're going into it with, let's just connect the dots. And then when they connect the dots, it's so much like this map, like it's not about, you know, the the illustration.

We often use in this organization that we're doing, we're creating that with, for, for patient care. This functional medicine consultant group is it's all about this map, and you're trying to crack the code for this chronic inflammation problem that people have, right?

Right. So the code is not one topic. We can't silo it into just mycotoxins, right? Not just tick borne disease. It's not just parasites. Right. As you and I have talked about, it's a combination of stuff.

And everyone's combination is different. Right. So how do you find what that code is for each person that padlock like for the bike. Yeah. Not two digits or one digit.

It's like six, nine, 12 digits. And you got to you can have every single digit right. Except one. And it doesn't open exactly. So you've got to cast a wide enough net to figure out what are the potential players.

And because you and I know like if we don't find enough of at least the big dogs, we could be circling for months to years around some topic, because each topic is difficult enough that we could get stuck in there for endless amounts of time with rational explanation why that's not addressed.

Yeah, but then only to find two years later, like, we missed on this topic, right? Guy? Like, so my mind is if the person is willing and able back to preference, back to financial peace and back to, you know, severity and urgency if the person's willing to cast that wide net, it's so much more efficient.

So you don't have to do it all at one time. But if we can at least get the data of front and create your map and know where we're headed at least we can then create the map. Start somewhere.

Even if it's like just one action point. But at least we know what where works cut out for us, and it's got to be more efficient than going, let's do this one thing, because that's what I know best, and that's what I'm most familiar with.

And that's what a lot of people talk about in your later, let's and randomly. Yeah. It's just not my it's not it's not the way I think. So the thinking behind what they do in that research with the metabolomics is it just really resonates with me.

It's like what we're doing a lot of us are doing with this kind of multifaceted piece. This, sometimes I call like multidimensional medicine is this know like multi it's like metabolomics, except it's so much more raw on the clinical level because we don't have data to go on.

So we're doing the best we can and networking with each other to try to figure it out along the way on a fly. Right. Right. Well Mark, this has been an just an awesome discussion.

I've had so much fun. Stuff and. Honestly, just enlightening patients about what goes on in our minds is they're practitioners. That's gold. That's valuable people.

People don't get that very often. So just thank you. Thank you for bringing, that stuff. It's and it's and of course, you and I both know, like the real fun is when people get better.

Exactly. That's the best. That's the best moment. And that's the time to celebrate when they they turn that corner and you see it happening, like. All right, now you're ready.

Yeah. You're almost done. Yeah. Is there anything else you want to share? Mark? Not enough time ahead. Yeah, I'm here for you. So whatever's on your mind, we've got pretty deep, so.

Thank you. Yeah. Sure thing. I just want to spend time hangout with you and your wife. I know Eric will do. We could all go to we. It would be like we don't.

Our chats are not all about that. We have. We have four kids, so we've got plenty of other things to like, try to figure out and by to playing around.

But yeah, we have, we have a, we have some pretty fun talks. Yeah. Yeah, it can be very professionally exciting to talk between us, but, Yeah. Any time.

Just, tell us when we're having our, zoom dinner date and let us know when. Thank you. Mark. All right. Thank you. It's fun. Thank you.