

## SIBO Research Updates on Hydrogen Sulfide, Methane and More... Masterclass and Q&A with Dr. Mark Pimentel Part 2

**Shivan Sarna:** Okay, I'm going to get to the questions...I have several questions. On one of the slides, it showed other factors including psychological. Do you remember that?

**Dr. Pimentel:** Yeah.

**Shivan:** So, what are the psychological implications and factors contributing to IBS and SIBO.

**Dr. Pimentel:** So, it's complicated because anxiety and those sorts of factors at the time of the infection—look, if you have a severe infection, are you anxious? Yes. You're more anxious the more severe it is. It's not clear whether the anxiety around the infection is because of the severity of the infection or because you have an anxiety disorder that has never been teased out.

As far as I'm concerned, if you look at all the factors that are really strong, it has nothing to do with anxiety. It's to do with did you bleed in the stool? Diarrhea two times a day where you're in the hospital to do intravenous fluids? All of those things are much more important, the psychological things are. Just because people were looking for psych all long, they tend to do that even in those times.

**Shivan:** Okay. So could stress be a factor? Is trust impacting our microbiome and our SIBO and IBS that much?

**Dr. Pimentel:** It's interesting. I've speculated on this in another way previously where I said, if you're under stress, the migrating motor complex or the cleaning waves of the gut are reduced.

So maybe that puts you at risk for food poisoning. It's possible. And I debated that, but there's no way to easily prove what I'm saying is correct. So I don't like to say it because I'm basically throwing up my opinion rather than some facts. But sometimes I think that might be the problem.

**Shivan:** Okay. And then, you were talking about the methanogens contributing to body mass. Can you cover that with us for a second?

**Dr. Pimentel:** Yes. That's a whole other talk, but I will summarize it.

Hydrogen producers are the big [unclear 02:11] in the gut. So they're producing hydrogen. And as I've mentioned, when the hydrogen level goes up in the gut, it inhibits those bacteria. It's sort of like they're pickling. And so they can't stop. They stop eating and digesting because the hydrogen level is too high. So it kind of contains them.

Now, the hydrogen producers are eating the lettuce and the salads and the material that humans can't digest. They're digesting them. They're helping get calories out of them. And so if you have a lot of hydrogen producers, and they're eating all that material, then they die and they give you all that nutrient, that gives you more calories. But because the hydrogen producers are self-limited, they kind of like pickle themselves, they do it in a contained way.

As soon as you have the methane, methane has taken all the hydrogen away, and the hydrogen producers are firing through food much faster, much faster, much faster. And therefore they're liberating more short chain fatty acids, more calories to you. And you've shown this in a number of studies.

The second part of methane is it slows your gut down—more time, more time to absorb, more nutrients, more calories. So the way I kind of summarize it is I say if you look at the back label of a bottle, and it says 120 calories per serving, your methane is 130 or 140, you get more calories out of something if you have methane because the bugs help harness or harvest energy.

**Shivan:** Very interesting, very interesting...

So, Dr. William Salt is joining us today. He commonly sees discordance between the predominant—wait, I lost it. “Predominant symptoms is diarrhea while the predominant gas is methane. Is that what you were just discussing? Is it methane constipation?”

**Shivan:** Yes. What Dr. Salt is referring to is that there are occasional patients where it doesn't make sense, meaning you have methane, but you're having diarrhea or you're flatline and you're constipated. And we see some of those.

But with the new machine, we see those patients. And what we see is that the hydrogen sulfide is much higher than the methane is high. And so there's a battle as I've said. And sometimes, the hydrogen sulfide wins. On average, methane wins. But occasionally, hydrogen sulfide wins in individual patients.

And so, that's why we need to know all three gases because Dr. Salt can't figure out the patient because he's missing a gas. It's not his fault. I know Dr. Salt very well. Hi Dr. Salt.

But when this new machine is out, it's going to be more interesting. You're going to get results that make more sense to your patients.

**Shivan:** Okay. Also, from Dr. Salt. We'll get to everybody. I'm going to try.

[05:05]

**Shivan:** “Can you comment on the clinical significance of a substantial baseline elevation of hydrogen on a lactulose breath test not attributed to poor prep?”

**Dr. Pimentel:** I have to declare an error on my part because I have always said high baseline = poor prep. And I would send patients home. And then, the next day, we prep them better, and we'd get a better baseline. But it didn't always happen that way.

So, the patient would argue with me. “I did the prep. I did, I promise.” I bring them back, we do the prep again—still high baseline.

So, when we analyzed all 17,000 breath tests in our clinic, we actually found that, in a good number of patients with high baseline, it did relate to more severe symptoms. So I proved that I was wrong, but it isn't always poor prep. It actually can be linked to symptoms. So my bad!

**Shivan:** Oh, my gosh! If that's the worst thing you ever do, I think you're fine.

**Dr. Pimentel:** But that's why it's important. You can't use opinion, you have to use data to prove one thing or another. And we have to keep doing this so that we understand this. You can't blame the patient. You got to figure out what's wrong. That's the way medicine should really be practiced.

**Shivan:** It's a mystery. And that's why I call you one of the digestion detectives.

Okay! This is where I go pretty fast you guys. And I appear to be rude sometimes, but I'm not. I'm trying to get as many questions as possible.

Several people have asked about can they get that hydrogen sulfide breath test done now or where or when or how.

**Dr. Pimentel:** So, the new machine is coming. I mean we're hoping that it will be available just after the holidays, like in the New Year. So that's exciting because it will be available.

Now, I can't say it's going to be available at your hospital because it has to emerge and people have to get involved and buy it and/or do the kits. It has to be adopted. But the device is fully validated. The device is validated clinically. This is the only device that has been validated clinically.

And the second part of it is it's going to give you an algorithm. We've actually figured out an algorithm of how to analyze the breath to predict symptoms.

So, it's more than just whether you're hydrogen sulfide or not. The stuff we haven't published is that we can predict algorithms on how patients might respond to therapy. We have a lot of different things that are going to be built into this which will make it more user-friendly and better for patients so that they can get the best outcome possible. I'm really excited that this is coming up.

**Shivan:** So, will that test for hydrogen, methane and hydrogen sulfide all at the same time?

**Dr. Pimentel:** Everything in one. Yeah, everything in one.

**Shivan:** And is the prep going to be similar to what we've been doing?

**Dr. Pimentel:** Yes, the prep is the same. We use the same prep for the device. But the device internally and the components and the way that it's built, it's completely different than anything that's out there.

**Shivan:** Very cool, very cool.

What about if you have high hydrogen, no methane and constipation?

**Dr. Pimentel:** So that, we know the oceans. And we know from our breath test and stool studies that there's a group of patients, who have methanogens in the stool, but it's greater than 10,000 per milliliter, but less than one million per milliliter. In that category, the methanogens are enough to make constipation, but not enough to show up on the breath test.

So, there's been a discussion about should we do stool testing for methanogens? So instead—not instead, but in patients where the breath test which is an easier test is negative but they're still constipated, to say, “Okay, look, your methanogens are elevated, but the methane isn't giving us the answer,” we’ve debated that. We’re trying to figure out how many patients that is and if it’s worth it.

I can tell you, it's really hard to get patients to bring stool in. And it’s expensive to do PCR and stool for these organisms. But it is something that can be done—I mean in the future.

**Shivan:** In the future.

Speaking of stool and stool tests, are stool tests a reliable and helpful tool in figuring out your IBS scenario?

**Dr. Pimentel:** So, I've always argued that the colon is the trash bin. It's like saying I know the people in the house by searching their trash every week. So I'll see Popular Mechanics Magazines. I'll see newspapers and something circled on there because they're thinking about buying a lawnmower. I may be able to figure a little bit about who lives in the house. And that's stool, it's the trash.

[10:08]

**Dr. Pimentel:**

But if you really want to know what's going on in the house, go in the house. The house is the small bowel. And the small bowel is where all the action is.

We're in the midst right now—and some of you may be happy to know this—over 10,000 patient trial, getting small bowel samples on all these patients. But more importantly, my lab—these brilliant people that you saw on the slide there (except for that infant, he's not doing anything)—we worked out a methodology for getting the bacteria out of the sample .

And I can't tell you more right now because we're publishing that. And that's going to be exciting because we can get 10 times more bacterial DNA out of our samples than typical aspirates because we now know how to free them up for DNA extraction.

And that was the problem. Everyone was getting lousy results because they didn't know how to actually handle the small bowel.

So, we worked on that. We've got 10,000 samples coming in over the course of the next few years. We want to figure out what's going on in the small bowel because we think that's the key to unlock a lot of diseases and all the SIBO that we've been dealing with.

So, we look forward to sharing those pieces of information as time goes on.

**Shivan:**

Ooh, fantastic! Tina, he answered your question. I'm going to confirm. Can you have methane and diarrhea?

**Dr. Pimentel:**

Yes. So it's the same question answered with Dr. Salt. If you have that third gas, you might be able to figure that patient out. But right now, you can't. So you have to just assume.

**Shivan:**

Can we speak to the viability of a methane spot test with no prep? Are they accurate for methane?

**Dr. Pimentel:** So, humans are either methane positive or not. So often, the first sample shows methane and we're done. Now, that's not going to be the case when the hydrogen sulfide comes up. It's still going to be probably the breath test.

But when we're looking at patients who are constipated, if you're coming up with constipation, and you test just a single sample, and your methane is positive, you can probably move on and treat it because there's a great certainty that the methane is the cause. And we can just treat it that way.

**Shivan:** What about methane and GERD? There are a lot of people that have that combination. Is there a connection? And also, what if some people can't have prokinetics? That's a layered cake there.

**Dr. Pimentel:** Well, the problem with methane is that it slows the gut down. People tend to be more bloated. When we did a factor analysis—factor analysis is like looking at a cluster of symptoms, what cluster goes with methane, what cluster goes with hydrogen, what cluster goes with these different gases.

With methane, the cluster is there is some reflux there. And we think because it slows things down so much, the pressure builds up, and you get more bloating when you're methane because it slows everything down and you can't clear the gases out.

So, you've got all these gas, and nothing's moving. So that's worse than if you have gas. Then you can at least relieve it. That pressure can make GERD worse. I'm not saying that it's actually the damaging the muscle of the valve or that it's doing any of that. I think it's more a reflection of the distension that creates the pressure that causes reflux.

**Shivan:** So, Lorraine, I know you're frustrated with the Internet. Remember, I don't run the Internet, honey bunny. I can't test your flexibility because you are so amazing, and you'll always be amazing. So please don't get frustrated with me.

How do you measure whether the MMC is actually a problem? She has a client who has post-infectious SIBO, but she was not producing anti-CdtB.

Also, she had had methane but was not—I don't know, it cut off. But you get the gist.

**Dr. Pimentel:**

Yeah. So what we're learning with these antibodies is that it depends on who does them and all of that. So we're trying to centralize all these blood testing because there's a lot of people trying to duplicate it, replicate it. And it needs to be done right.

So, we don't know that anybody's negative. We need to have the correct people do it in the right way. That's not in the slideshow.

But migrating motor complexes can only be measured by an invasive procedure of putting a tube in the small intestine and sitting there for six hours watching these patients with some sophisticated equipment. You do it, the Mayo Clinic sometimes does this. There's other centers in California that do it. But it's not that many places (maybe eight places in the United States).

**Shivan:**

So, is there value to getting it done, or is it like just do the breath test and you can deduct about your migrating motor complex?

**Dr. Pimentel:**

So, where nothing works, there is value. If you're getting good success with treatment—

You know, my goal is—and this is why I showed you all the things I've showed you today—make it easy, make it easy, and make it easy for patients. They've gone through too much already. And so many negative tests...

The better I can do it not needing too many tests—and blood tests is easy. A tube test for six hours, putting it through your nose down into your stomach and into your small bowel, that is not an easy test. And you're awake. You won't get sedation. It's not an easy test. Believe me, I know these patients suffer with this.

So, I don't want to do it unless it's absolutely necessary.

And there are patients were nothing's working, and I need to figure out exactly what's going on. And I still do it. So, we do maybe 40 a year out of all the patients we see.

**Shivan:** Let's change gears a little bit. Oh, I have one more methane question. And then we're going to change gears, guys, to treatment.

[16:04]

**Shivan:** Again, from Dr. Bill Salt who's one of our speakers coming up on the 21<sup>st</sup> I think—no, this weekend. Anyway, while the colon is predominately involved with the Methanogen smithii bloom, how commonly is the small intestine included? Does methane bloom cause or contribute to gut epithelial permeability dysfunction, leaky gut, as does SIBO?

**Dr. Pimentel:** So, the problem is methane hasn't been well-studied in the small bowel. In the Greek study—I didn't show this data. But in the Greek study, 20% of patients in that study had M. smithii in the small bowel.

Again, there are two important things about that. Number one, nobody ever believed M. smithii could even exist in the small bowel. All the previous study says it only exists in the left colon. That's wrong because we found it in the small bowel of 20% of IBS patients.

The second part of that analysis that we did was, when it was there, it was larger a number than anything else combined. So when it blooms, it takes over.

Now, what we haven't done is that next piece that Dr. Salt is alluding to, for example, leaky gut. One small thing we did find is that when the methanogens are there, when M. smithii is there, it's anti-inflammatory, anti-TNF. So TNF levels were reduced.

Now, maybe that has implications in some diseases. Maybe it goes back to some points I made in previous conversations or broadcasts. I don't want to get rid of methanogens. I want to get them back in order because they may be beneficial in [certain concentrations]. And we want them at the modest level, not eradicated.

**Shivan:** Because it's part of a natural microbiome, a healthy microbiome.

**Dr. Pimentel:** That's right. We're not here to wipe it out. We're here to get it to behave.

**Shivan:** Okay. Let's talk about rifaximin everybody. How do you pronounce this? Is it S-Y-N-10 or is it "syn10."

**Dr. Pimentel:** You could say either word. "Syn10" is good.

**Shivan:** Either. Okay, so let's do this.

SYN-010, since SYN-010 is created on the aspergillus—I'm not pronouncing that right—substrate, will this potentially feed Candida?

**Dr. Pimentel:** Ah... it's the extract. It's just the lovastatin. There's no aspergillus in there. And so it should have no effect on Candida or any of that.

I will say one thing. We presented an oral presentation (which was a really boring oral). And I actually gave it at the big meeting, at the DDW meeting. Rifaximin does nothing to Candida.

And what I mean by that is before or after two or three treatments of rifaximin, there is no increase in Candida in the stool... none. So you don't get excessive Candida from rifaximin. That was proven in a very large trial. So I'd like to settle that. That's good news. Some people ask me, "Well, if you take rifaximin over and over again, are you going to get yeast? Are you going to get vaginal yeast infections?" The answer from the data we presented at this meeting, boring as it is, is no.

**Shivan:** Does it reduce Candida by any chance?

**Dr. Pimentel:** The Candida levels, there were sporadic patients with Candida, and it didn't change whether they had it or not. It didn't reduce it. It didn't increase it. There weren't more patients with Candida because of rifaximin. It just didn't affect it at all.

**Shivan:** I literally have like ten questions about this. What about the 25% or so of patients who never respond to rifaximin? What about the people who are on seven courses of rifaximin?

**Dr. Pimentel:** Let's address the seven courses first. We published a paper that up to six treatments of rifaximin if it works the first time, it works up to six treatments. We obviously now have patients who've done more. It works almost as well the first time, but we didn't see a deterioration to suggest resistance.

[20:13]

**Dr. Pimentel:** Interestingly, there were some patients where they responded, wow, 80% the first time. They took it a second time, they got to 40%. They took it the third time, wow, 80%. So there is variability in response. And maybe the second time you took it, or the patient took it, they were a little *laissez faire* with how they dosed it. Maybe they didn't take all the pills. Maybe they were just thinking, "Oh, it's just going to work magically, and I'm not going to be so rigorous." Who knows?

But if you take it rigorously, it's really going to work almost every time. So if you're saying seven times, and it doesn't work, that shouldn't be happening.

If you take rifaximin, and you get zero response, don't take it again. It's not going to work. If you get a 30% response, it maybe 80% the second time because you're getting the bacteria down, and then down further. I don't have a problem with that notion.

But if you get 0% response, you need to move on and you need to figure out what's going on because it may not even be overgrowth. It may be some other thing.

So, in the patients, the first part of the question is, if you take rifaximin where you don't respond, those are the patients I look for a lot of other things.

So, the way I would operate my clinic, if it was in the primary care GI setting, is get the blood test. That's what I would do. And then, I would treat them first. And if they respond—there's nothing else that responds to rifaximin like that. Crohn's doesn't respond to rifaximin. Celiac doesn't

respond to rifaximin like that. So it has to be IBS. And then I would proceed that way.

If they have relapses, or if rifaximin doesn't work at all, then that's the patient, you're going to do the colonoscopy because your chance of finding something goes way up. Now, you're taking the patients who don't have [unclear 21:55], and you're looking for something that are more sinister.

So, that's how I would do it.

**Shivan:** Where can we go for the anti-CdtB and vinculin test?

**Dr. Pimentel:** Well, stay tuned for that. Maybe I'll send it through you, some information on the best way to get it. But give me a few weeks.

**Shivan:** Oh, my gosh! Please, please, please, especially because we're going to be doing the upcoming summit to tens of thousands of people coming September.

**Dr. Pimentel:** Like everything else like breath testing, like everything else, we've got to do it right.

**Shivan:** You have to do it right.

So, is there any other blood tests we should ask for out in the world, or just wait until that one's readily available?

**Dr. Pimentel:** Stay tuned.

**Shivan:** Okay, okay. I know somebody is asking here very persistently. A couple of questions. If Crohn's doesn't respond to rifaximin, what would you do? There's a whole different protocol for Crohn's, right?

**Dr. Pimentel:** Yes. So there's some data from Europe that suggests that patients with Crohn's disease can respond. But let me kind of address that.

So, Crohn does not go away with rifaximin. A subset of people with Crohn's disease, because Crohn's can cause strictures, Crohn's can be long segments of bowel that can cause stasis or fluid to build up, Crohn's

can cause obstruction, adhesions and so forth, you get overgrowth very commonly in Crohn's disease, but it's due to the Crohn's. It's not the typical IBS. That's one part of Crohn's disease.

And then, rifaximin helps. I mean it relieves the bloating and the distension and the symptoms and the overgrowth that occurs with Crohn's disease.

Then there's another part of Crohn's disease where you happen to be that lucky person, 1 in 10 or 1 in 11 as I've mentioned, that has Crohn's disease, but you also have IBS. And we think that the blood test helps there.

When we say the IBS, the blood test, isn't as sensitive, but it's very, very specific, it's because of these Crohn's patients. A few, a very small few of them, have positive blood tests. But the blood test may be detecting IBS in Crohn's because 10% of everybody has IBS. So, if you took those out, the blood test would be amazing. And so my point is the blood test may be helpful even there.

But again, those patients do respond to rifaximin.

And this is a final important point to Crohn's disease. We've seen it a lot. that. Crohn's disease patient, they're on the Humira, they're on the anti-TNF. They get a scope—oh, the Crohn's looks great. There's no inflammation. But they're still symptomatic. They probably have IBS, IBD overlap. That's the patient that I'm talking about that has IBS plus the Crohn's disease. Don't increase your steroids. Try to treat the overgrowth or treat the IBS. And maybe rifaximin is a good choice in that instance.

So, that's kind of how we do it. And I hope that is clear.

**Shivan:** I hope that helps. What about your recent study on rifaximin and *C. diff*?

**Dr. Pimentel:** There are studies that compare even rifaximin to vancomycin in *C. diff*. And rifaximin and vancomycin are equal in terms of treating the *C. diff*, which is why we didn't see any *C. diff* in any of the trials with rifaximin.

[25:07]

**Dr. Pimentel:** The problem with that is that you can try it, but it's not FDA approved for that. It's FDA-approved for travel diarrhea, for encephalopathy from liver disease and for IBS only. But people do of course off-label. If the patient is sick, and they need to try something because nothing else is working, then of course we do off-label sometimes for this.

**Shivan:** Okay. People want to know when the lovastatin is going to be available.

**Dr. Pimentel:** That's the number one question I get in the clinic every week. And let me tell you, it's so frustrating. It's more to do with—the company that has it has done a great job. They just need to get the money to do the big trial and the partner.

And the drug is amazing. The clinical trial, the phase III trial was amazing. And it's been just frustrating for me and for patients to wait, to hope that there is some kind of arrangement so that the money is there to be able to do the phase III trials.

To be honest with you, SYN-010 is a game-changer. It is not another laxative. It's not another drug to just treat the symptom of constipation. It's treating the cause.

And for some reason, I guess the investment community or whatever, they don't get it. They think it's just another constipation drug. It's not. It's disruptive because it treats the cause.

**Shivan:** Wow! Wow. Somebody is going to really change the world (and frankly, make a lot of money) if they will get that thing taken care of and out there.

**Dr. Pimentel:** Well, anyways, that's where it's at. And I can tell you, I'm frustrated every week.

**Shivan:** I'm sure you are.

**Dr. Pimentel:** It's just like you have something, you know it's going to work, but you can't use it. It's at your fingertips, but it's not available.

**Shivan:** So, everybody who's listening to this, if you know anyone who's in the medical research world, the pharmaceutical world, let's get connected here. I'll see what I can do to help out there and get some important people connected.

Okay! "How much money do you need to get SYN-010 out?" I like the way you're thinking whoever's asked that question?

**Dr. Pimentel:** If you have \$80 million dollars, that would be it!

**Shivan:** Alright!

**Dr. Pimentel:** It's two large clinical trials. That's how much it costs. Drug companies need a lot of money to get drugs across the line.

**Shivan:** If you have reflux and methane—

**Dr. Pimentel:** You went off that topic really quickly.

**Shivan:** I know, I did. What? The \$80 million?

**Dr. Pimentel:** It's a lot of money, yes.

**Shivan:** No, at the back of my mind, I'm still focusing on it. Don't worry.

So, we have someone who's really sounding quite desperate. I know we all feel desperate sometimes.

"Have reflux and methane. And methane not gone." She already has reflux and methane. And the methane doesn't go away. It hasn't gone. And the prokinetics make the reflux worse. But I think it depends on what prokinetic you're on. "What do you do and what can you do to get that methane gone, allegedly, or low reflux bad. But all prokinetics make reflux worse?"

Okay, that's that on that. What do you think about that?

**Dr. Pimentel:** So, it's a very sophisticated question. And it's the truth. In patients with methane or patients with reflux, if you take a prokinetic, it can make the reflux worse because what you're doing is basically causing the stomach to

contract. And if it's contracting and the small bowel is not responding because of the methane, you're basically getting a high...

**Shivan:** Say that again? Say that again, Dr. Pimentel? Say that again. The Internet jumped out.

**Dr. Pimentel:** If you create high pressure in the stomach from a prokinetic (because the stomach is now contracting), and the small bowel [unclear 28:56] because of methane or whatever is going on with the motility of the small bowel, all you get a pressurization in the stomach. And that will make more reflux.

So, what I would suggest, first of all, if you can treat the methane and get it down, that will be the first thing to do.

The second thing is you really should take the prokinetic on an empty stomach at night. If you take it on an empty stomach at night, you get the migrating motor complex very forward-moving and keep the gut clear.

Don't go high dose prokinetic because high dose will make more pressure with those and facilitate the cleaning waves. That's how I would do it.

**Shivan:** I know that hundreds of people just had an aha moment when you said that. Wow! I'm very glad I asked that.

Let's just talk about rifaximin for another moment and about how it has such a high—people are calling it a relapse rate. But is the Xifaxan or the rifaximin really what's having the relapse rate or is the patient having the relapse rate and the rifaximin is probably doing its job and there could be adhesions or something else that keeps taking you back to a relapse?

[30:04]

**Dr. Pimentel:** Well, if I have a patient that relapses in two weeks, I've got to start thinking of some other reason for the overgrowth. If they have a relapse in six months or three months, I'd treat them again and again and again. I don't want to offer surgery for something that can be kept away medically. The problem with surgery is begets more adhesions the more you try to

get rid of adhesions. Sometimes, they come back on the same spot in the bad spot again.

But if you have relapse in two weeks, and it adhesions, you got to try to fix them and redo. But also, if you're going to fix adhesions, don't just go to somebody who does general surgery. You really should try to find somebody who knows what they're doing with this. And we have some super expert colorectal surgeons who deal with adhesions all the time. They know how to handle them. And they know the right material in there to try and prevent adhesions from coming back. And so there are experts who do this in a good way.

**Shivan:** Okay. Nancy, he already answered that question. So I'm going to let you relisten to the tape. When rifaximin isn't working, and they really don't think that it's something else—is that even possible—what is an alternative treatment for SIBO? There are the herbs. What else do you do? Or are you like, "That's not really what you should be thinking?"

**Dr. Pimentel:** No, I'm not anti-herb or anti-natural approaches. For example, in methane, if you have methane, I guess the question is: "Is the breath test positive or not?" But if you have methane, allicin or Allimed can be effective. There are other herbal cocktails that are used—for example, the Hopkins Cocktail.

But the problem is a lot of these aren't tested in double-blind fashion, but they seem to be effective.

One of the problems I find with a lot of the herbs is resistance occurs quite quickly. So for example, with methane, I see relapses within weeks. And so I guess the bugs figure it out and find a way to bypass whatever it's doing and then overcome it.

So, I don't know what other people's experience are, but that's what I generally find. But I try those things of course in those difficult and challenging cases, which I even did yesterday.

**Shivan:** Okay. So it's worth a try, right?

**Dr. Pimentel:** Oh, of course. Definitely.

**Shivan:** Say it again?

**Dr. Pimentel:** Patient first.

**Shivan:** Patient first.

“If the nerve damage in the gut”—which you showed us those beautiful pictures of—“possibly from the vinculin, can that be reversed when you get the bacteria under control? Or do you have to get the antibody under control?”

**Dr. Pimentel:** No... this is the big mystery.

So, we when we published the migrating motor complex paper, it's very exciting, we showed that the low MMC is common in people with overgrowth. But there's a little secret section to there—it's not secret. It's there, but people don't pay attention to it. If the overgrowth was eradicated at the time we did—so, in other words, you had a positive breath test, but by the time we did the migrating motor complex assessment, the patient had eradicated it (they took whatever antibiotic) and then the breath test is now normal, the migrating motor complex was a little bit better.

So, even though we know vinculin is damaging, we think that the bacteria, once they start collecting in there, they're keeping it worse. Look, if you're bacteria, do you want garbage in the colon, or do you want the In & Out burger that's coming down right now, the fresh, good stuff, the easy stuff? Of course, they want to try maintain and hang on in the small bowel because they're getting the good stuff.

So, I'm sure there's something they're doing. And of course we have not worked out what that might be. We don't think they're producing CdtB because [unclear 34:05], the migrating motor complex gets slightly better, but it's still way damaged. It's not fully recovered.

**Shivan:** Let's talk about prokinetics for a second. And what are some of your favorite? Do you go with the typical ones? What do you think about LDN.

**Dr. Pimentel:** I know a lot of people use LDN. And I use it sometimes, but not as much in my clinic. Dr. Rezaie, my colleague, uses more of it, and he likes it. I tend to use more erythromycin just because of my long experience with that. Again, it's low dose erythromycin. It's 50 mg. or a quarter of a 250 mg., which is about 62.5 mg. It works just brilliantly at night. It will keep it away. It's not going to keep it away indefinitely.

I used to love Zelnorm or tegaserod, but it's off the market. I hear it might be coming back later this year. That would be awesome. There's a drug that we can get Resolor. California law allows physicians to acquire drugs that would benefit the patients outside the country. Resolor is available in a lot of places in the world. And I hear that that's coming to the US soon. So that's a really great drug. I love it for gastroparesis, for a lot of the different motility disorders. Resolor has been working well. And my colleagues in Europe love it. So I'm excited to have that in the US officially soon.

**Shivan:** That would be amazing!

[35:35]

**Shivan:** Okay, we're going to go a little bit faster. Is there special treatment protocol for those with the bloom? And any special diet advice? And could you define the bloom please?

**Dr. Pimentel:** So, overgrowth, the way we define overgrowth—and of course it changes as we start to understand this more and more. But overgrowth, we define as you're you're supposed to have x number of bacteria in the small bowel, but instead of that, you have 2x or 3x, too many bacteria. And we call that *overgrowth*.

In the case of methanogens, because we're not sure if it's in the small bowel or not—and I've given you [unclear 36:12] some patients that might be. But when we measure the methanogens in the stool, they tend to be proportional to the constipation.

So, we think that they're over-abundant or blooming. It just a species that just is too much which is the *M. smithii*. So if one species is too much, we call it a bloom as opposed to just the opportunity for everything to grow

too much which is because of the motility that we saw or that we talked about.

**Shivan:** And where is the location of the bloom, large intestine or small intestine?

**Dr. Pimentel:** I'm going to find that out for you. We don't know yet. As I've said, some of the studies we've shown that the methanogens are in the small bowel, but we have to correlate that with the breath testing.

We have correlated the breath testing with stool levels of *M. smithii*. And that correlation is true which is why we're calling it a *bloom*. If it's correlating with stool, it's correlating with colon content. We haven't been able to correlate with small bowel content officially yet.

**Shivan:** Okay, I'll quit asking that question. Okay.

Well, what about repeated rounds of neomycin with rifaximin for SIBO? And people are asking, "Can a prokinetic treat methane?" Remember, a prokinetic is what you do *after* the treatment to help prevent relapse. But what about neomycin. People have a lot of concern about the toxicity there.

**Shivan:** So there is a lot of pieces to that question. There was a really nice study that was done by probably the world's guru on food poisoning and gut microbiology before all of the sophisticated molecular stuff came. His name is Dr. Herb Dupont. They respect him very much. He's in Houston, Texas.

He showed that rifaximin prevents resistant bacteria. And it does so because it gets into the cell, and it stops the bugs from producing plasmids which have these resistant genes on them. So, rifaximin may actually mitigate resistance based on what he was seeing in his data. And it's published.

He also suggested that, because if you're on rifaximin, and it stops these plasmids from replicating and sharing the resistance among bacteria, it may prevent resistance to other antibiotics if co-administered.

So, what we've seen with neomycin, 75% of people would be resistant after the first treatment. So even if it worked, it wouldn't work 75% of the time a second time. Rifaximin, you can give again and again and again and keep working.

If you give neomycin with rifaximin, it seems like it works again and again and again also, I presume because of what Dr. DuPont showed, that rifaximin can prevent resistance to other antibiotics if given together. So I think that might be what's happening because we can't get away with neomycin over and over again except unless you give it with rifaximin.

But the second part of the question is the neomycin toxicity. So, for some reason, we have a fear that neomycin is toxic. So let me unpack that question. Neomycin is a drug category called aminoglycosides. Aminoglycosides include amikacin, Gentamicin and neomycin.

Gentamicin is a drug that was given very commonly in the 1980s for people who had heart infections. So if you had an infection in your heart, you got to get Gentamicin intravenously for weeks. And after getting Gentamicin intravenously for weeks, people would get hearing loss. And that's called ototoxicity. *Oto* means "ear toxicity." And so, the hearing loss was a concern.

Now, neomycin in the 1960s was given for a year or two years for liver patients with encephalopathy. And if you take neomycin for two years straight, you might get hearing loss.

[40:12]

**Dr. Pimentel:**

But after thousands of patients giving 14 days of neomycin, I've never seen hearing loss in patients.

And I'll say one more thing about that because this is super important. When we were doing our double blind trial with neomycin and rifaximin, the FDA wanted us to do hearing tests at day one before taking drugs. And if anybody had any problem, to repeat the hearing test.

Of course, in the IRB and consent form, they say, "Okay, if you have hearing loss, tell the doctor." And so the patients are reading this. The first

patient comes in the trial. They say after four days of the neomycin + rifaximin cocktail, they say, “I think my hearing is a problem.” We stopped the study. We bring them in three days later. They come in, they have a runny nose, they have a cough. They basically had a flu, but they didn’t know at the time.

And then, they finished all that. We did a hearing test again. And the second hearing test was better than the first one. So they could hear better after doing this.

**Shivan:** Okay, moving on.

**Dr. Pimentel:** Sorry, long answer, right?

**Shivan:** No, no, no. I’m saying moving on from that myth, the myth.

**Dr. Pimentel:** And so, the point is I don’t see it in the short treatment. That’s the short answer. If you told me at the beginning short answers, and I keep giving you long answers.

**Shivan:** No, it’s great. It’s only so I can get to everybody because I can already feel the walls closing in on me.

I wanted to ask you—okay, surgery. A lot of people have had surgery. They get the adhesions. What also happens though is—I don’t know how long it takes adhesions to form. But it seems like their digestion gets really wrecked after the surgery. Have you observed that? And do you have any suggestions?

**Dr. Pimentel:** So, what I tell patients when they have abdominal surgery is—and I’m sorry for being so long-winded.

**Shivan:** Dr. Pimentel, I’m living in your world. It’s our honor. Tell us whatever you want.

**Dr. Pimentel:** Okay.

**Shivan:** Take your time.

**Dr. Pimentel:** So, if I were to [...] hammer your finger, it would become swollen. It would hurt. Did I tell you this before?

**Shivan:** No, I'm just thinking about my finger and a hammer. It would hurt!

**Dr. Pimentel:** Yeah, you get hurt, right? So you wrap it up, and you hug your hand. And you don't use the hand for a week. And you let it heal.

When you do surgery on the bowel, you're hitting the bowel with a hammer. But tomorrow, you're eating. The bowel has to work. It's like you have this thumb. But the next day, you go and you use a jackhammer and you start doing your construction work again with this damaged thumb.

Well, the bowel is all swollen. It's hurting. It doesn't want to work. It wants to rest. But yet, it can't. No time. It's got to be active. It's got to be working.

And so, it takes a long time for the bowel to heal from abdominal surgery, much longer than other organs because you can't baby it. It's got to be ready to go the next day.

**Shivan:** What if it's even like—not bowel surgery, but like you have a caesarian. Will that impact it?

**Dr. Pimentel:** It's the same thing. Is inflammation in the area?

**Shivan:** ...in the area, okay.

**Dr. Pimentel:** The bowels, you've got a little scar right here, and the bowels are rubbing on it constantly because it's moving around, moving things around. It's painful. And that's why adhesions form because of this...

**Shivan:** Does taking lovastatin for high cholesterol also decrease your methanogens.

**Dr. Pimentel:** That's a good question. The problem with the drugs that are on the market—so every time a human has touched lovastatin and tried to change the molecule to make it better for cholesterol, it made it worse for methanogens because we tested all the statins. So any time they broke the

molecule down and did this and did that—so Lipitor and all these other new ones—they don't do anything for methanogens. We tested all those.

The other problem is the lovastatin drug that you get, regular lovastatin, it's meant and designed to be absorbed [unclear 44:12]. We don't want that either. The problem is you need higher doses of lovastatin in the gut to cover all that bacteria to get the methane down. And you have to design it so that it doesn't get absorbed and it stays in the gut and that it gets released in a particular way or order to cover and coat the bacteria and the methanogens there.

And that's why the regular stuff doesn't work. That's why we had to get creative with this SYN-010 product because we had to be able to get higher doses, we had to be able to get it to where the bugs are. And then, it's effective.

**Shivan:** I'm going to change the subject a little bit because we've been really talking about this background science and all that. Let's talk about ways to prevent food poisoning.

**Dr. Pimentel:** I love it! Let's do that. You want me to freeform answer that?

**Shivan:** Yeah! I know you have a great tip about Thanksgiving.

[45:06]

**Dr. Pimentel:** A great tip about Thanksgiving, oh yes. You mean the burner under the—yes, I'll say that again.

I shouldn't say this is my idea because this is Herb DuPont from Texas again. He used to say, "If you're going to a wedding buffet, don't eat at the sides of the pan. Eat where the burner is because it's the hottest." The sides of the pan are almost body temperature. They're perfect breeding grounds for bacteria. That's the perfect temperature.

So whenever you're eating with those—I can't remember what the name of them are. You know what they are?

**Shivan:** Bunsen burners?

**Dr. Pimentel:** Yeah. Well, there's Bunsen burner underneath. But the pans, the whole system is called something.

**Shivan:** Oh, chafing dishes.

**Dr. Pimentel:** Chafing dishes, that's it. You always eat from the center of the chafing dish where that hot, hot gas is because that's where it's above the temperature. The bacteria are cooked there.

But the point is, if you travel, when you travel to places where food poisoning is common, don't eat the salad. Don't eat raw stuff. Don't eat ice cubes. Ice cubes are used from the local water often, not from filtered or properly prepared bottled water. Drink bottled water, drink beers. Soda is okay (even though soda causes gas and distension). You're not going to get food poisoning from soda or beer or bottled water.

Anything that's cooked, anything that comes to your table that's hot, there's no bacteria in it. If it comes to your table warm, you don't know. It's all about food preparation.

So, you can't avoid outbreaks. You can't avoid the Romaine lettuce outbreak that comes because somebody didn't use the latrine on the farm where they're picking the Romaine lettuce. They put it in the soil because they just went right there because they couldn't make it to the bathroom. Then you get this contaminated lettuce. You can't avoid that because you can never know.

Sorry to be gross and graphic, but that's how these things happen.

And ironically—and maybe I'm speaking out of turn—the meat industry has done a fantastic job monitoring. But the farm industry has been a little bit problematic because you can't control every person on the field. The bathroom is a mile away. And if you can't make it, you have no choice. The farm industry is a bit different. It's hard to regulate the security of food poisoning in that industry [...]

Anything else? I can keep going about...

**Shivan:** But this also happens here in the States. I think that's the other thing. What do you clean your lettuce with at home? Do you put a little hydrogen peroxide like food-grade hydrogen peroxide in the water? What do you do to clean your veggies?

**Dr. Pimentel:** Well, there's something that I tell my patients that I would never say on a video recorded broadcast about which supermarkets are the worst and which are the best because I don't want to have a lawsuit. But there are supermarkets where the food that they get is grade B. And then there are supermarkets where the food they get is grade A. And there is a difference. It's a difference in price. You pay more, you get from better quality farms. I know it's not affordable for everybody.

But if you cook your vegetables, if you cook your produce, that's not a problem. But if you're eating raw stuff, seriously, you get what you pay for. And that's just the way it is. It doesn't have to be beautiful, but it has to be from reputable places.

I don't know anything about farmers' markets. Farmers' markets are all over the place. And they comment. They only comment that "this was recalled from this food store" or "recalled from that food store." But there are certain food stores that never show up on the list. And there's a reasons—because they choose their vendors better. That's just the way it is.

**Shivan:** Okay, okay. I've got a couple of thoughts running around here. Oh, this has to do with food spacing. If you brush your teeth and you have toothpaste obviously on your toothbrush, will that stimulating the migrating motor complex?

**Dr. Pimentel:** That's an amazing question because I've had that question so many times in my mind. I never heard it out loud. And to be honest with you, I had always been scared of that question because I don't know how to answer that question.

The thing is that if you taste food or sweetness in your mouth, theoretically, it's inhibiting the migrating motor complex because you've

now got the oral phase of digestion turning on—which means the OMMC. But I’ve never tested it. I’ve never tested it.

[50:05]

**Dr. Pimentel:** You don’t swallow that toothpaste. Hopefully, that person doesn’t swallow the toothpaste because that definitely will turn it off. But it’s a very interesting question. And I really don’t have an answer.

Please, brush your teeth though.

**Shivan:** Yes. And what if you did like hydrogen peroxide and baking soda? That’s not sweet.

**Dr. Pimentel:** Yeah, that’s not sweet. And again, I don’t know, but I presume that would be okay.

**Shivan:** Do we count the hours from when we finish eating for meal spacing?

**Dr. Pimentel:** Studies have shown that it takes roughly 90 minutes to two hours to fully digest your food. And that’s where we get the 2-4 hours from. And it takes roughly 90 minutes to two hours after a meal before you start seeing the first migrating motor complexes.

So, the way we decided on five hours was if you had 90 to two hours, you’ve got three hours in which to have two migrating motor complexes. So my goal was to increase the chance of having at least one, if not two, migrating motor complexes between each meals by spacing five hours.

And you have no idea how many times patients have come to my office and said, “You know, I started snacking. And you’re right. I’m worse” or “I decided not to listen to you, and I had this particular food item just that one time. And you’re right, I got worse. I got bloated.”

And so, we think that the diet that we use is very effective and not too cumbersome. And the way we structure the fasting, we think it’s really important.

**Shivan:** Okay, alright. Fiber, how much is too much fiber? You were talking about a low fiber diet. Can we say a low fiber diet is also a low fermentable diet?

**Dr. Pimentel:** Right. Well, fiber is fermentable. So less fiber, less fermentation products. Of course, there are other things that are fermentable. But the low fiber, I would say 20 to 30 grams of fiber a day would be low fiber. You don't want to go zero fiber because you just basically cut out so many different food items, so many different boxed foods or processed foods that are out there that contain that degree of fiber. And then, you'd be driving yourself crazy.

My goal as I've said from the beginning is give patients the feeling that they're human, not the feeling that they have to go to a restaurant, embarrass themselves or feel uncomfortable by the people around them watching them, ask the waiter or waitress 10 different questions before they can order their meal. They feel embarrass about all of that.

I want the diet to be such that you can go into any restaurant in this country, you'll find something on there, and not have to declare to the waiter or waitress that you have a problem, and that you have to be choosy. You can pick and you're done.

To me, that's getting life back.

**Shivan:** That would be amazing, wouldn't it?

**Dr. Pimentel:** Okay. We have a Dr. De Lorenzo. "After a second round of recommended antibiotics, what do you recommend to bring back the intestinal flora? Do you have a preferred [unclear 53:32] after treatment? We've heard mixed approaches—probiotics, no probiotics, prebiotics, no prebotics. What about following up with a non-antibiotic type like Atrantil or peppermint? Do you have a preferred method of trying to get that?"

**Shivan:** I have to say I don't use a lot of Atrantil, but I have a few patients on it. There are people who swore by it in terms of methane, that they get a good effect with that. So that's something that could be used and perhaps safe.

To get the flora back—because rifaximin, remember, we studied rifaximin microflora in a bigger study than have ever been published previously to

that date. And we showed that rifaximin does not mess up your flora. You don't need to take a probiotic after it. You don't need to regain the flora. You don't need to recalibrate anything because it doesn't work in the colon.

So, with rifaximin, I don't feel we need to do that. I just spent the last couple of weeks reviewing all the papers on probiotics. And I got to tell you, Lactobacillus, on summation, doesn't work. Bifidobacteria doesn't work.

The only thing that might have some benefit are cocktails. And each cocktail is different. Some of them work; some of them don't.

So, I would say if I were to look at the entire balance of the equations, I'd say probiotics are not that effective here. And so the natural products like allicin or Allimed and all of those things we've talked about already in the earlier part of this webcast, I think there's a good merit for those [unclear 55:18]

**Shivan:** Okay. And then, doing the fermented food, just little baby bits, at appropriate times?

**Dr. Pimentel:** It's up to the patient. If the patient tolerates it, and it's not bothering them, I think it's okay.

[55:36]

**Dr. Pimentel:** Now, there's another problem with fermented food that we didn't get into—acid. Betaine HCl, a lot of the doctors and natural physicians are advocating Betaine HCl for patients. You want to make methane go up? Give hydrogen. Give them acid. Acid is hydrogen. They produce more methane from acid. So you could be making the situation worse.

So, you kind of have to know what they have before you start using these things. For a hydrogen person to be getting acid will reduce bacterial overgrowth. I think it's possible. But if you take a methane person, and you put acid in there, you're going to have more.

**Shivan:** Okay. What about insurance companies and rifaximin? Do you have any comments? There are a lot of people that really struggle to do that, to get it.

**Dr. Pimentel:** Well, what we're finding—and this is the latest data that I got from the company that makes rifaximin—is that 98% of insurance companies will cover rifaximin. But that's not the whole story. Ninety-eight percent of insurance companies cover at least *part* of rifaximin. So if you've got a \$1000 bill, and the insurance covering \$300, and you have to pay the other \$700, that's not covered. It's partially covered.

But I would say, at least in California, if we write it as diarrhea-IBS—because that's what it is. The SIBO may be the cause, but the real diagnosis is diarrhea-IBS (or mixed diarrhea, they're the same), and you put that on the label (meaning as the diagnosis) because that's what it is. You'll get covered.

Medicare falls somewhat short. But for the most part, people are getting almost 90% coverage. And I mean 90% of the bill.

So, we're not having much problems here in California. And most of the country is okay too. But you have to have the right diagnosis. If you put something like “adhesions,” you're not going to get covered because that's just...

**Shivan:** Right... so if the insurance company is saying that it's an experimental treatment, maybe the code that was written down on the prescription for it was not...

**Dr. Pimentel:** It's not FDA-approved for adhesions. So that's the problem.

**Shivan:** Okay, rapid fire here in our final 10 or 11 minutes together. Some patients with pelvic pain greatly are aggravated by diarrhea, and they decline to take the lactulose breath test. But the glucose test is said to miss many cases (as you've already addressed). What advice do you have for confirming SIBO diagnosis in these patients or somebody who can't take the breath test?

**Dr. Pimentel:** You mentioned diarrhea, but if it's methane and it's constipation, then you don't even need to even give a sugar. Just do a breath sample.

We think in some patients, if hydrogen sulfide is elevated at baseline, you may not need a breath test either because once it's over about 1.2 on this device, you're positive, whether it's baseline or not. So, that one might work also once we have the new machine.

But glucose will detect a fair number, probably two-thirds of overgrowth that's there with lactulose will be detected by glucose. And if they can tolerate it, then it's—the problem is if it's negative.

But another approach which is used by a lot of physicians is if it smells like SIBO, sounds like SIBO, and looks like SIBO, why not just treat it and see if you get better because even if you get a little bit better with rifaximin, then it probably is SIBO.

**Shivan:** Okay. And if a patient is doing the test correctly, but still has really high levels, like 121 that goes to 150, had severe die-off, repeated the breath test, the peak was 142—

I think Amazon is ringing my doorbell.

If a patient is doing the test correctly, what would make these baselines be so high? Could it be just severe overgrowth? Have you seen this before? Would you keep repeating the antibiotic routine?

**Dr. Pimentel:** Well, again, when it's really high, it speaks to me like there may be something else going on. Is there adhesions to make it so high and so non-responsive to therapy?

The one thing we didn't talk about is barium studies are done so terribly in most places to look for adhesions. I've gotten so many patients in our clinic where they come in with their barium x-ray and it's one picture with barium everywhere and you can't see anything.

[01:00:07]

**Dr. Pimentel:** Our guys here, they separate every loop of bowel. It's like 24 pictures before they can conclude that there's no adhesions—even though the other outside centers, one picture, they charge the same amount to the patient as us doing 24 pictures and spending a lot of time. You really have to have a good barium test.

**Shivan:** And so you really need to interview very carefully the people who are involved with that, right? Okay.

Somebody is saying Medicaid doesn't cover rifaximin; Medicare doesn't.

**Dr. Pimentel:** Medicare covers it very poorly. We've seen that even in California. It depends on the plan. It depends on the supplements. It depends on the supplements. It depends on whether you've supplemented with Blue Cross or not and all of that. So yeah, it's a little more challenging with Medicare.

**Shivan:** And you're not a huge fan of apple cider vinegar, right, because of the acid?

**Dr. Pimentel:** Well, I'm not against it. But if you have methane, don't take it. That's all I'm saying.

**Shivan:** Okay. There it is, Theresa. He answered your question there.

Could radiation for breast cancer cause adhesions in the abdominal area?

**Dr. Pimentel:** The answer to that is no. But the problem with radiation—and I've had a number of patients over the years who had radiation, for example, for Hodgkin's Lymphoma (because lymph nodes can [unclear 01:01:29] in the mediastinum or the center of the cavity here), radiation here could mean radiation of the vagus nerves which control the motility of the gut. And if you damage the two nerves that come down the neck, down the esophagus, you're going to affect the muscular function of the gut, and you'll get overgrowth. So, as I say, there are many causes of overgrowth.

**Shivan:** Wow! That's big. That's intense. That's intense. So that's why people with traumatic head injuries could also experience SIBO, from damage to the vagus nerve?

**Dr. Pimentel:** Yes, head injuries, radiation for thyroid, radiation for lung cancer, radiation for breast cancer is possible that you can damage the vagus nerve with that radiation.

**Shivan:** Wow!

**Dr. Pimentel:** You have to administer it to the body, not just the breast.

**Shivan:** Let's see... what about *Saccharomyces boulardii* in terms of a probiotic?

**Dr. Pimentel:** I looked at that, no benefit.

**Shivan:** No bueno...

**Dr. Pimentel:** Well, not for SIBO, not for IBS. It may, for example, for *C. diff*. It may work for [unclear 01:02:48], people who had their [unclear 01:02:51] taken out, and they get inflammation. So it has benefits, but not for SIBO in my opinion.

**Shivan:** Okay. Cat, we have talked about that.

Did we answer how to regrow the microbiome after treatment like with the neomycin and rifaximin?

**Dr. Pimentel:** Yes. Yes, we answered that one.

**Shivan:** Okay, great. So when people are constipated—we have two chronic situations here continually because I'm reading the people's questions that were submitted beforehand as well as people that are coming in live.

If you are chronically nauseous and chronically constipated—and a lot of constipated people feel like they need fiber—what do you usually tell your patients? It's not medical advice for us, but as ideas for us to take to our doctors and discuss.

**Dr. Pimentel:** I mean if you're nauseated, the methane could certainly be a contributor to that. If you're vomiting, methane doesn't contribute to that. So that's again suggesting adhesions and other more sinister culprits for the overgrowth.

But it's a complicated questions. Really, I would've had to take a full medical history on that patient to kind of get to the bottom of the nausea.

So, I'm not going to be able to easily answer that question because it's really—*it depends* is really the answer.

**Shivan:** Do you have articles on your website or just check out PubMed?

**Dr. Pimentel:** Me? PubMed has all of my articles. The good news is there are very few Pimentels out there publishing. It's good to have an uncommon name. Smith, yeah, not a good idea.

**Shivan:** Okay. Yes. Nancy, the answer to your question is yes. A lot of people use magnesium for constipation. How do you feel about that?

**Dr. Pimentel:** I like magnesium. The only caution I give to my patients—because I use a lot of it—with milk of magnesium or magnesium, the kidneys can clear magnesium from the blood, but not that fast. So if you go fast, if you take it in faster than your kidneys can clear it, your magnesium in the blood can go up. And that can cause heart rhythm problems and weakness because the muscles are affected by the high magnesium level. [01:05:19]

**Dr. Pimentel:** So, my point of caution is don't take too much of it. Or if you do, you should get your magnesium checked in the blood.

**Shivan:** Okay, very interesting. I've never heard that before.

**Dr. Pimentel:** This is also Pepto-Bismol. That's not really part of the treatment though there are place who think this reduces bacteria. Bismuth toxicity causes nerve toxicity. You can get numbness in the hands and feet. Bismuth is bad if you take it for the long-term. It's okay for short uses, but not for long-term.

**Shivan:** You know, a lot of people use the bismuth for not just coating and protecting their stomach with pepto, but as part of breaking up the biofilm.

**Dr. Pimentel:** Yeah, yeah. And there are people who drink a bottle of Pepto every day. And then, they come in and they can't feel their hands and feet. It's bad.

**Shivan:** That is bad.

Okay. Hydrogen sulfide—the questions keep coming—what are we doing to treat it? Is there any herbal approach that works?

**Dr. Pimentel:** Stay tuned. Stay tuned.

**Shivan:** Okay! That's good though, you guys.

**Dr. Pimentel:** We're going to have more things coming. Otherwise, you'll be bored with me.

**Shivan:** I would never be bored with you. None of us are ever bored with you.

By the way, you guys, since we're wrapping up, feel free to put love into the Q&A area for Dr. Pimentel. And I'd love to hear your aha moments. I will share them with him.

I have two final questions. Metronidazole, is that Flagyl, right?

**Dr. Pimentel:** Flagyl, yes.

**Shivan:** It's often given for methane SIBO? Have you seen a lot of metronidazole toxicity, meaning metronidazole-induced encephalopathy with B1 deficiency and malabsorption/malnutrition?

**Dr. Pimentel:** Metronidazole can cause a number of side effects. If you take it long-term, also numb feet and hands because it can cause neuropathy and neurological things.

The most common effect of metronidazole is a metallic taste in your mouth. The metronidazole toxicity, the nervous system toxicity occurs if you're taking it again for months and months and months. It doesn't happen in 14 days. So it's accumulative dosing.

**Shivan:** Okay. Why does ox bile help with constipation?

**Dr. Pimentel:** I don't know.

**Shivan:** Okay, we'll move on. Feel free not to answer this one. If somebody's already had the IBSDetex test, what's the reasoning behind now doing the new IBSChek test? And if you don't want to get into this because it's complicated, that's fine.

**Dr. Pimentel:** Well, stay tuned. I'm happy to give you the answer in a month. And then, you can test it onto your viewers.

**Shivan:** I would love that very much. I thank you so much, Dr. Pimentel. People are saying nice things about you. They've learned so much in two hours. They feel hope. Great stuff! Fantastic presentation.

Okay, you have someone who just straight out said, "I love you."

**Dr. Pimentel:** Uh-oh... uh-oh... don't tell my wife.

**Shivan:** Alright, we will look forward to more conversations with you in the future. I do have Dr. Pimentel as part of our SIBO SOS™ Summit as well coming out in September. He's also going to be part of our documentary in 2019. And we will pass on this love to you in the form of a document so you can just look at it on the refrigerator if you're ever feeling frustrated or like it's not going as well as it should.

**Dr. Pimentel:** Yeah, I have a lot of days like that. So I could use the boost. So thank you, everybody, for tuning in, for listening to me babble for two hours.

**Shivan:** Loved every minute of it. We are going to look forward to more of that in the near future and in 2019.

God bless! Thank you sir.

**Dr. Pimentel:** Bye! Thank you everybody.

**Shivan:** Bye! Okay. I don't know about you guys, but that totally blew my mind. That was amazing! You know how many hours I have interviewed fabulous people and not taking anything away from them, SIBO experts? Mind blown! I hope you feel the same way. I work very hard to get to as many questions as possible as you saw me hustling here. And I had to get to some of the people who submitted in advance. I did my very, very best.

Usually, I get 99% of them answered. I would say I did not get 99% today. We also had a shorter session because he could only give us two hours. So I would say we got about 85% of them done. [01:10:08]

**Shivan:** Dr. Rachel Fresco she is the product developer for Bio-Botanicals. Biocidin, have you heard of this? She was an herbalist just doing her thing. And she had Commonwealth Labs when they were doing their GI Stool Test reach out to her—this is way back—saying, “What is in this formula?” because when they put the formula on the stool, it was killing all the pathogens in the stool.

Biocidin started her company, Bio-Botanicals. And she has created toothpaste, mouthwash now, all kinds of great things in this line including a whole protocol for SIBO. She is one of our sponsors.

I have a 10-minute presentation that I did with her that I wanted to share with you. I'm going to play it now, and you can watch it now. But I'll also email it to you. It was very, very interesting.

You know, I tend to get a little bit jaded about supplements because I feel like “I've been there, done that, taking them all.” But the things that she was saying to me really, really impressed me. [01:19:59]

**Shivan:** Okay! So, we do this. We do this.

**Shivan:** Hi everybody. Shivan Sarna here with [SIBOSOS.com](http://SIBOSOS.com) with the IBS & SIBO SOS™ Summits. I'm here with Dr. Rachel Fresco. And she has an amazing back story as well as an incredibly helpful series of products for all of us.

She's the founder and chief formulator of BioBotanical Research located on the West Coast of the US, in California. Her company got its claim to

fame when, great smokies, Diagnostic Labs—now Genova Diagnostics (which is fairly famous here in the States)—contacted Rachel to ask if Biocidin as a Candida treatment option on the Comprehensive Digestive Stool Analysis as the test results on all yeast and bacterial types showed a very strong broad spectrum activity—as in it was killing all of these pathogens.

Since that time, it has become a standard amongst integrative functional medical doctors and practitioners looking to support their patients in GI health and also helping people with systemic infections.

So, I've been using the entire Comprehensive Cleansing program with incredible results. I totally believe in this line. I love the new toothpaste. She's got a new dental rinse as well. If you have dental issues, if you have root canals, it's something that you really need to be paying attention to. And she has a potential helpmate for you in that.

And so, I would love it if you would take a few minutes Dr. Fresco to talk to us more about Biocidin, GI Detox, Proflora 4R and other formulas. We've been talking about mold. We've been talking about IBS, dysbiosis, the immune system.

So, take us through this because your products are so potent, so different, and so ultimately effective.

**Dr. Rachel:**

Thank you. I've been very happy to be able to help so many people over the last 28 years. I love the feedback we get.

So, the Biocidin started out as this liquid formula. And it's very, very strong. You start with one drop, and you work up to three or four drops three times a day. So this is not like a tincture from the health food store that you take a dropper-ful. You could really get die-off. If you don't know what that is, as you're breaking down the biofilms and killing the pathogens, your body has to detox those remnants.

And so, it's really important to go very slowly with this, start slowly. And to use this GI Detox in between meals on an empty stomach to help mop up those toxins that you're breaking down.

What we found with SIBO is that the Biocidin alone was able to reduce the levels of hydrogen-producing bacteria by 50% without a change in diet and without any other supplements. So, if you do your proper SIBO diet, and you use this, and then you combine it with the Olivirex (which is the one that seems to be helping as a support against the methane-producing bacteria), these two are kind of a one-two punch.

And in fact, not just in SIBO, but if I get a cold or flu, I use these both together. If I have a bladder infection, I use these both together. I think you get a broader activity with the olive leaf and all of the antimicrobial botanicals that are in the Biocidin.

So, those are the two that are sort of the standard for whatever you're addressing if you think that there is a microbial component to it or mold.

For mold, a lot of times too, you can use the liposomal version of the Biocidin. And that bypasses the gut and goes systemically. And either of the Biocidins can be used in a nasal wash.

On our website at [Biocidin.com](http://Biocidin.com), there's an FAQ. You can read about some of these things and how to use them.

The other one that I'm super excited about, that I'm proud of, that we came out with last year is the Proflora. So this is a spore-based probiotic. The spore form don't have any susceptibility to temperature, acid, antibiotics. So they can get down to your gut and really proliferate. And they have immune modulatory and antimicrobial effects all of their own. [01:25:12]

**Dr. Rachel:**

And then, we added a 170 times more powerful type of quercetin. So this quercetin will help with mast cell response and histamine reaction and really help people feel more comfortable as they go through this process.

We also added marshmallow and aloe. And those are great, as you know, for healing the gut lining and as a prokinetic for gut motility (which sometimes is an issue for people with SIBO).

Dr. Jill Carnahan did some research on the GI Detox and found that it was very effective in microtoxins in before and after lab tests that she was

running on trichosanthes with companies like Real Time Labs. So, this is always helpful as a support.

And you mentioned the oral products. And I think that's really important because, if you have bacteria that you're constantly swallowing and seeding your gut with, that's not helping.

So, we took the Biocidin liposomal, and we added the quercetin, Coq10, clove and myrrh. And this is kind of a souped up dental formula that will help combat the plaque, combat the biofilms in the mouth, and reduce inflammation in the mouth.

And we also put the Biocidin in a nice toothpaste. And this toothpaste is great because you can use it every day. It's got almost an ounce of Biocidin in this bottle. And I have found this to be much more effective for me than any other toothpaste I had used. By the end of the day, you don't feel like anything forming on your teeth like, "Oh, my teeth are getting dirty. I need to brush them again." They still feel clean. So that's a good sign that you're breaking down the biofilms.

And the dentist have told me that the combination of these two has dropped people's pockets in half in six weeks. So that's important if you're trying to take care of your gum health. When you visit the hygienist, they're going to tell you those numbers, right? And you don't want to see 4's and 5's. So you want to get those numbers down. So, that's super helpful.

And what else? I think our whole protocol works well together. If you get the Comprehensive Kit—like you're using, Shivan—you get the Biocidin and the Olivirex and the GI Detox, the Proflora, as well as a free toothpaste.

And you also get the Biotonic. And I haven't talked about that. This is a Chinese herb formula that's super supportive to the immune system. It helps you to have more energy. It helps combat bloating (which is very important in SIBO). And it supports the adrenals.

So, this comes in the kit as well as an extra support.

So, that's what I recommend. I recommend that you work with your practitioner or your doctor with these. And let them know that you're interested in taking them. If they haven't heard about them, we're happy to help them get on board as a practitioner.

**Shivan:** And if you need to just go directly to you, the name of your website one more time?

**Dr. Rachel:** It's [Biocidin.com](https://www.biocidin.com). And for those of you in the SIBO SOS community, just put in **SOS** as the code, and you'll get free shipping on your order.

**Shivan:** Oh, thank you so much. Thank you so much. And you have other things on the website too, some other products that we haven't even had a chance to talk about.

**Dr. Rachel:** Yeah. Mostly, this is the core of what we're doing. And for your listeners who are who are mostly concerned about SIBO, I say, if nothing else, just at least get on the Biocidin, the Olivirex and the GI Detox. Those are the three must-haves. And then, the Proflora, I'd say it's a pretty must-have too. That's why I put it in the kit altogether. But that's a good start.

And if you go for eight weeks, and then reevaluate, if you're careful with your diet, and you do this along with anything else that your practitioner has recommended, you'll see a huge, huge improvement. We saw 70% to 100% symptoms completely gone in eight weeks. So that's big.

But some people, you need to continue. You need to continue on a maintenance for this. It might be six months to totally get through everything. It could be years that you've had this condition. So you can't expect that it's going to go away in three weeks. It's going to be a process. But you should see a tremendous improvement on your lab tests and how you're feeling at eight weeks.

**Shivan:** Oh, fantastic. Fantastic! Tell me one more time. The one box—because I know it's like a comprehensive kit—how long does that last?

**Dr. Rachel:** So, if you're using the moderate level, it would last two months. So you're getting two bottles of Biocidin® and then three bottles of GI Detox™ and

Olivirex®. You're getting the Biotonic for two months supply. And you're getting the toothpaste. So that should put you together for two months.

If you're doing it more slowly, it could last you even longer.

So, if you get your first kit, say that lasts you two to three months, and then you get another kit, and you're only using it at maintenance, that's going to last you twice that long. So now, in two kits, you've probably gotten through six months. And you're probably feeling real at that time.

**Shivan:** Yeah! [01:30:13]

**Shivan:** And do you ship internationally, Rachel?

**Dr. Rachel:** We have distributors internationally. A distributor in Europe, Pro Supplements. We have distributors in Korea, China, New Zealand and Australia.

And if you go to our website, you'll see the international distributors, and you'll see where to get them. In Canada, right now, we have a distributor who's dropshipping to the patients.

**Shivan:** Perfect! We really appreciate you. Thank you. Keep up the great work. And we'll keep you posted about all the great progress everybody is having from the products.

**Dr. Rachel:** Thank you. Thank you.