Dr. Jill

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#127: Dr. Jill interviews Jim Tomlinson on Mold Remediation 101

Text:

Dr. Jill 0:13

Okay. Hey everybody. Welcome again to another episode of Dr. Jill Live this afternoon. As many of you struggle with mold-related illness and have sought me out for expertise in that realm, I am super excited for our guest today. I think for any of you who either know a lot about mold or don't know much at all about mold, it will be an incredibly enlightening and helpful resource for you today.

Dr. Jill 0:34

I'm going to first introduce my guest. Jim Tomlinson is a certified indoor environmentalist and certified mycotoxin and mold specialist with extensive knowledge of mold, mycotoxins, and other environmental issues. He is frequently called upon as an expert witness in court cases involving mold and mycotoxins. What I love about Jim is that he's a former real estate broker and developer, so he really understands building construction, the building envelope, and a lot of these things that, as you well know if you've dealt with mold-related illness or mold toxicity in your own home or workplace, are a really big deal because these are the kind of details that can be missed if you don't know what you're looking for. We'll dive in today to all kinds of questions about remediation and what to look for, and Jim will share his expertise with us.

Dr. Jill 1:18

Jim, I am so excited to have you here. Welcome!

Jim Tomlinson 1:22

Thank you, Dr. Jill; it's a pleasure to be here.

Dr. Jill 1:25

Yes, I'm super excited! So I want to hear your story, but I'll frame this with how you and I met. I've had a lot of clients and patients who've used you and had very good reviews and feedback, but recently here, I am kind of the mold expert. I had mold in my own condo right here a few months ago, and you helped me with that, and I'm so grateful. What I want to talk about specifically today is—we'll dive into the details—some of the things that you do and the way you do them that are really important for patients, clients, [and] other people who have mold-related issues to know about. But before we go there, we all have a story [about] how we got into our business. You were a former real estate broker, [you did] construction and contracting—all that kind of stuff—and [were a] developer. How did you make the transition? How did you get into what you're doing now? Tell us your story.

Jim Tomlinson 2:11

Well, we actually had never been to Colorado [before] and came out to visit in 2010 and fell in love with it and wound up moving our family out here. We barely survived the real estate crunch in 2008. We had a 48-acre subdivision that we had developed, and as you know, that market was horrible back in '08. So we got completely out of the market and moved to Colorado from Georgia. Shortly thereafter, we were in the Waldo Canyon fire in Colorado Springs. If you're in a fire and you're taking your most valued possessions, family photos are probably at the top of the list. So I went down into the basement to retrieve several boxes of family photos of the kids when they were young, etc. before the digital age, and I immediately found black mold growing in them. There had been a hose leak draining down into that closet. So through that process, we had to evacuate for 10 days, and when we came back, we had it tested. That's when I first got into the mold business.

Jim Tomlinson 3:22

I connected with a gentleman in Austin, Texas, [named] Dan Yates, of Texas Mold Consultants, and Dan and I started a business in Colorado called Smoke & Mold Services. Dan stayed extremely busy in Austin and was hardly ever here, so we decided for me to just take it and run with it. At that time, I changed the name and dove headstrong into the mold business. With my background in real estate and construction, it was a good fit for me. I initially started out working for another company doing inspections and got basic training from them, and combined with Dan's training—Dan is a mold assessment consultant, certified safety professional,

and professional engineer—that's how we first got into the business, and it exploded. I put my hands on everything I could find out about mold, microbes, VOCs, formaldehyde, and other biohazards. The Lord really blessed our business, so we've grown and grown and grown. Actually, we have customers in 16 states now.

Dr. Jill 4:34

Yes. As you and I well know, there's such a need. I always say this: I know the body, and I can help people heal. But I can't tell you how many times, Jim, I've been sitting in front of a patient as I suspect with their history, they moved, and all of a sudden they have brain fog, fatigue, autoimmunity, chronic infection, or all these signs that might point to the environment as a cause of their illness. And then, as I do the testing, I see signs of mold. Again, I can help them heal their bodies, but the rate-limiting step for me and really any physician who does what we do is that if their environment is contaminated with mold and mycotoxins, no amount of supplements, IVs, drugs, or anything at all can reverse that. So I really rely on people like you in the industry who know what they're doing.

Dr. Jill 5:18

As we both know, the other thing I want to talk about today is that there are a lot of mold remediation companies and great people out there, but not a lot of them understand the depth of the chronic illness that can be caused by mycotoxins. As you and I know from being in court cases to testify for the patient and the client, even in those kinds of cases, a lot of people don't understand, right?

Jim Tomlinson 5:42

That's right. Yes, there's that overlap with what we do as environmentalists and the medical community. As you said, you guys recognize that no matter how well you detox your patients for toxic mold exposure, if they return to the toxic mold environment, they'll never get well. We recognize that no matter how well we clean up that environment, if they don't detox, they will not get better.

Dr. Jill 6:03

Yes. We both need each other on this journey.

Jim Tomlinson 6:04

We really do, yes. Otherwise, it's a revolving door, and they're back [to square one]. I think that's why we cherish the referrals from the medical community because it's a two-for-one; not only do we have satisfaction when we've cleaned up their

environment, but we are [also] playing a little part in that healing journey for them as well.

Dr. Jill 6:31

Yes. And again, with a group like ICI and some of the groups that train physicians—I'm on the board there—[and] of other groups that deal with mold-related illness, probably the number one topic of conversation among medical doctors and practitioners is: How do we get a good environmental expert in the patient's home to help? So again, I want to bring awareness around what you do and why it's so important—that frames our conversation.

Dr. Jill 6:54

I'll go back to my experience as well. This ended up being a leak from a neighbor's fridge. I started to have symptoms of brain fog and fatigue, kind of like mold. But I'm so fastidious about cleaning my drains and doing everything right. The biggest lesson I learned, and some people have heard me say this on recent podcasts, is to detach the water line from your fridge; it's just not worth the ice cubes because it's so often one of those hidden things. That's one of those things that can happen. Anyway, unbeknownst to me, there was a water leak, and it caused damage to my condo and caused some really nasty Chaetomium to grow, [which] we remediated and fixed.

Dr. Jill 7:31

I wanted to say that the first thing is that you really have to be careful, even if you know what's going on. There are things that can leak and can happen, and you [might] think it's no big deal, [but] it can turn out to be a really big problem. Even you with the photos in the basement, here you are, a contractor. I know you've built homes so carefully and craftsmen-like, and yet here you are in a home that you owned too [that had mold]. It's these things that we don't even know that can be our biggest problem. One thing I wanted to say before I ask you what you would do in a situation, is in a situation like this the neighbor might be like: "Oh, we'll bring a contractor in. No problem. Let's rip this out." And I'm like, 'No!' because you and I [both] know what happens as you start to blow up an area where you know there might be mold—the amount of cross-contamination that can happen if you don't do it right really, really can make someone's bad situation way, way worse. So let's talk about that. When you first come in to examine a home and maybe I suspect the patient has mold, you come to see their house and you look. Where do you start? How do you look at the environment? And then tell us the process of what—

Jim Tomlinson 8:28

Sure. What we do is use a combination of visual inspection and the history of the home. History is very important because there may have been a previous moisture intrusion issue that was corrected and built back if you will. And then by looking at it structurally, everything looks fine, and without knowing the history of that, you wouldn't know to dive in a little deeper and find out, or maybe ask other questions: Was it professionally remediated? Where was the area that received moisture intrusion?—and things of that nature. Also, we usually ask: "Is there anyone in the home that's symptomatic?"—because oftentimes the customer may have read somewhere or had a family member or friend tell them about mold, and they have experienced some of those symptoms, but they may or may not have told us about it. So it's good to know that because that's a key also. So we use: History of the home; "Is anyone symptomatic in the home?"; visual inspection; and we look in all the places that we normally find mold, the obvious areas where you have moisture coming into the home where you have plumbing, vanities, the kitchen sink is a big one, a dishwasher, an ice maker, a drain line—that sort of thing around the perimeter of the home. If there's a basement, [and] if there are windows in some of those rooms, we like to look at the tack strips underneath those windows to see if there has been any moisture intrusion.

Jim Tomlinson 10:04

We use all that data, combined with air and surface sampling and swab sampling, to determine if mold remediation is recommended. And then we also like to collect dust samples for a mycotoxin panel; it's a composite test similar to the ERMI, but in my opinion, it's better than the ERMI. The EMMA portion of that gives you the DNA of the genus and species of mold present in the dust, which is more useful for you guys than it is for us, but we like to look at the mycotoxin levels to determine what type of remediation is needed. Is it just what we call "level 1" remediation?—where we micro-contain the area, put it under negative air pressure, remove the water-damaged building materials, remediate the mold, and then wipe down and fog the inside of the containment. Or is there cross-contamination?—where there are mycotoxins scattered throughout the home and a larger remediation plan is needed.

Dr. Jill 11:05

[That's an] excellent synopsis of what you do and how to look at it. I want to clarify for those of you listening: Jim just did a fantastic job of going through [it], but I want to make sure you understood what he said because it's so important. First of all, when you're testing, these are actually tests you can do. Ideally, you want someone like Jim, but even in our clinic, we can actually start to order some of

these things. And I want to differentiate. The name 'ERMI' as we both know, has gone by the wayside a little because the original data on how to score an ERMI has not been validated. But the underlying data, which is called qPCR, is DNA testing in your dust for mold species—that's accurate. It's just one way among other ways, like you said, air sampling, surface sampling, [and] qPCR. And again, I say that because if you talk to some inspectors or mediators, some people in the industry, or if we're talking in a court of law, ERMI has been invalidated. That statistical evidence of scoring through the ERMI, we don't even use that. But what we do use is a qPCR, which is still sometimes called an 'ERMI. So as you're listening, if you get confused, [this might help clarify things]. And I wanted to clarify because I like to talk to remediators like yourself or anyone [else] in the qPCR language because then we know we're getting legitimate data and not using that ERMI sample. But the other thing you mentioned is really important; it's called an EMMA.

Dr. Jill 12:18

So think about this: If you have mold spores in your home, [they're] going around and they're problematic. But when we inhale those, they don't actually go through our lung tissues—they're too large. They don't go directly into the bloodstream. So they can cause allergies that can definitely trigger immune inflammation. But the much worse issue is when those mold spores are disrupted and go into a thousand parts like fragments. I always think of the example of a dried flower arrangement. You either flick it or you blow on it, [and] it just shatters into a million pieces. Or say you have a piece of blown glass that's thin, and you flick it or hit it, and it just shatters. When you take mold spores and disrupt them from an environment, this is why containment is so important because if you shatter that environment where it was hiding behind the wall, all of a sudden a bad issue becomes so much worse, which is why I told you in the beginning when someone said, "Oh, let me just get the contractor and open that up," I'm like: "No! We want it contained, and we want to protect this." If you have an issue with mold and you think it's a do-it-yourself project, you could be in a world of hurt if you don't contain it and protect it.

Dr. Jill 13:21

But back to the EMMA testing. Now, this is a whole other level because we have the spores, we have fragments of spores, which start to get smaller particulate and more damaging and more disruptive, but then even smaller than that is your mycotoxins. Those are the toxins produced by the mold that are invisible. They're smaller than 2.5 microns, so they can literally go into our lungs, right through the alveoli, and into the bloodstream without any 'do not pass.' It goes right into the blood, so those are actually the most toxic. And what I heard you say, Jim, and this is different from many, many people I've worked with in the past or even known, is

that you're actually testing that before you even do any containment or remediation because you want to know, in that patient's home, in that environment: Has there been exposure to the toxins that mold produces?—because you and I both know that if you do the remediation perfectly and you take down containment, but before this ever happened, the house was loaded with toxins that are smaller than 2.5 microns, [then] their books, rugs, clothes, and environment are going to be so contaminated that you might do that remediation perfectly, but they don't feel better. And I feel like this is so important to take a little time on because this is where I think many people have had remediation [done], successful or partially successful, and they still feel incredibly ill. Now, hopefully, that made sense to you listening. But you want to comment on that.

Jim Tomlinson 14:36

Sure. Dr. Jill, we've had many, many times that we've come into a home—in fact, it happened just this past week—where the customer has had professional remediation done, and in the interview process of questioning them about the remediation and water intrusion and that sort of thing, they'll explain that it was just this one area. And then we'll find out that there may or may not have been post-testing done. So that's a big red flag there for us. If they don't know that the area was checked out, then obviously we want to pull some additional samples from there as well. But then a bigger issue is that even if they've had the post-testing done, I like to look at the lab data and the environmental data. If they had Stachybotrys, Chaetomium, Aspergillus, or Penicillium present in high levels and there was not a follow-up test done to find out if the mycotoxins were dispersed throughout the home, then we definitely want to recommend that to the customer.

Dr. Jill 15:43

Yes, thanks for helping me verify because this is one of the reasons I want to talk to you and share this information. For me as a clinician, what I've seen over and over is that number one, if you say, "Do you have mold in your home?" patients are like 'no.' Ninety-nine percent of people either don't know it, don't believe it, are in denial in some form, or don't understand that connection to health. That's the first thing. So we have to ask the right questions, which is what you do when you inspect. You're like: "Well, have you had any water intrusion? Have you had any leaks?" I'd love to maybe go through some of the things that you might see under the sink. What are some signs and things that people could look for in the house?—like discoloration or those kinds of things.

Jim Tomlinson 16:21

Yes. [I recommend looking through] a lot of the baseboard trim under windows, and as we mentioned earlier, basement windows. A lot of the time, MDF is commonly used. It's modified—'fiberboard'—I believe it's called—for baseboard and trim. It's not wood, but it's basically made of paper, and it's compressed very tight. MDF will swell very quickly once it's exposed to moisture. We use a strong flashlight and look for bubbling or swelling on the baseboard MDF areas around laundry rooms and that sort of thing, underneath the windows and basements, and we'll gently pull back the carpet and check the tack strips. Now, I don't recommend that anyone that's symptomatic do this in their own home because, as you said earlier, you can actually disperse these spores and mycotoxins in the air just by disturbing them. We're trained to do that very, very gently and to put it back.

Jim Tomlinson 17:23

One of the things that we're asked often is, "Can you go into the attic and check the attic out?" Well, I had a customer just last week that had another company come in, and they had an immediate reaction after a gentleman went into the attic and pulled all that stuff back down. So we have to be very careful. We call it 'invasive inspection,' where we go in and we can go into a wall cavity and we can look with a scope and we can actually draw an in-wall cavity air sample and that sort of thing. But we have to be very careful not to just go in and do that. That area should be micro-contained and put under negative air pressure before that invasive inspection is done. We've had customers call and say: "We had this issue. My husband went in and took the drywall out, and now we're all sick." Those are the things you don't want to hear. The average person, unless they've done some research online, is not aware of that. But it's better to call a professional.

Dr. Jill 18:27

Yes. I couldn't agree more. I just love that you're saying that because I say that often. It's funny because my story [is that] years ago when this all started in my clinic after the Boulder floods, I had some massive mold in the basement. I've told this before, but you'll almost laugh. First of all, we had an unfinished crawl space right under my office that had standing water, and in my office, there was an old carpet. The contractor said, "Oh, let's just put in beautiful new bamboo floors right over the old carpet." So every single step I took was soft; [I was] bouncing on old, gross… [It was] probably puffing up [mold spores]. And the crawl space was unfinished, and the lower level, which is the basement, had bulk stacking. My very first experience was walking down with an inspector—no masks, no gloves, just my normal professional dress—with a putty knife picking off the mold and taking the sample. But [we had] no protection. I look back and I'm like: "Oh, my goodness! If I only knew. It's no wonder I was sick." Now I know better. So I do like that you're

saying that because, like I said before with the example of the dried flower, if you disturb something that's stuck behind a wall—again, it's not good that it's there—without containing it, you can make a bad situation way worse. And I've seen that happen too many times as well.

Jim Tomlinson 19:36

You sure can. I'm sure many of your patients are extremely hypersensitive to mold. I mentioned Dan Yates earlier; he's in Austin [and has] been in this business for 35 years. Dan has pointed out that in the Austin area at certain times of the year, the levels of Aspergillus that are found outdoors are through the roof. We have several customers that are from the Austin area. They can't live in Austin because of the fact that Aspergillus and Penicillium are in the air in such high quantities in the summertime—I believe it's the summertime.

Dr. Jill 20:14

Yes. That makes sense, and really, it can be a huge issue. So the other thing about this is that you and I are both dealing with the more sensitive patients because, as we know, there's a percentage of the population that is much more sensitive to this. This is why it can be so confusing in a house when maybe your spouse or your son or daughter are perfectly fine and you're incredibly sick or vice versa. There is a difference in the body's ability to get rid of these and to basically tag and eliminate these toxins. There's a wide variety in how people present. What do you think is the biggest thing you've seen as far as… ? [There are] older homes, [and there are] newer homes; I think sometimes the newer builds are so quick. But are there any types of things as far as construction that worries you more?—[please share] any tidbits at all that you've learned.

Jim Tomlinson 20:59

We've had several customers that have bought brand new homes and had us come in to inspect them, and we found mold on the lumber that came from the lumber yard in the unfinished basement. In most cases, it can be remediated. You may still have moldy lumber behind the wall though, and that's a major concern. But it only takes 48 hours of continuous moisture and/or relative humidity above 50% and a mold spore, which are ambient, they're everywhere, and a food source [like] lumber, drywall, carpet, cellulose material, and dust, and that sort of thing, to start mold colonization. So it can be in a new home. An interesting thing is [when one is inspecting] very old homes. We've done quite a bit of business in Minneapolis, and a lot of those homes downtown were built before 1900. We'll go into the unfinished cellars of basement areas, and we'll say: "If I had to bet on it, I would say it's

absolutely microbial growth." But we'll pull a sample and send it into the lab, and it'll come back with no fungi detected. The first time that happened, I called the lab director and asked him to check it himself. I said, "This is impossible." But I quickly learned that what happens is very, very old mold growth—60, 70, 80, [or even] 100-year-old mold growth... If you think of a dandelion, we may have blown that as a kid—you used the analogy with the flower, and I like the dandelion—all the seeds blow everywhere. Well, in very old mold growth, that's what you wind up with—just a bear stalk. All the seeds are gone, and the mycotoxins have diluted over decades of time. So it actually looks like mold; it looks horrible, but it's of no health concern. But then, as I said earlier, in some cases, you may have a brand-new home that has a toxic mold environment.

Dr. Jill 23:08

That makes so much sense because I've always said I'd almost rather live in a 100-year-old log cabin with holes in the walls because there's going to be airflow and a dilutional effect from the airflow. I've seen some LEED-certified buildings that are beautiful and amazing but they're so airtight and they're poor constructions with how moisture, condensation, and [other] stuff happens. And I've seen some bigger issues in some of these newer homes like you said. I think it depends on the area and the market for real estate, but at certain times, the construction has been so fast and poorly done. I'm sure you've not been involved in that. But even right here by my condo, there's a ton of new condos and quickly built things being put up, and I look at that and how the wood gets soaked in the snow and the rain, and I'm like: "Oh! That's going to be an issue," right?

Jim Tomlinson 23:56

We've seen a very, very expensive home in California that was constructed poorly and had areas that just weren't ventilated. Even in any home, if you think about it... We have a teenager; our youngest is 18 now. You know how teenagers are; they'll go in, they'll take a real hot shower, and all the drawers, doors, and cabinets will be open. The vent fan will not be on, and it'll just be permeated with humidity, and then they'll leave. Or they may close the drawers. But they've trapped that moisture inside those cabinet areas. We've actually seen mold and mycotoxins growing inside the vanity cabinet area because of a lack of ventilation. So it's really important to be aware of how to mitigate mold and moisture and keep your home safe. Those are very important things.

Jim Tomlinson 24:53

I know you've shared with me that you're working on a document, and I think it's important to adopt a plan for your individual household based on: Do we have teenagers? [and other factors]. I don't want to get away from our conversation, but there are also switches that you can retrofit in your bathroom that have humidistats built in. They're fairly inexpensive, but they will automatically turn on that bath vent fan if the humidity rises to a certain level. You can set it at 35%, 40%, or what have you. Again, we want to keep those humidity levels under 50%.

Dr. Jill 25:33

Yes, that makes sense. In my office and home, I have a humidistat—I guess you'd call it—freestanding, so I can always watch. I think of us in Colorado; it doesn't mean we don't mold, but the humidity generally in the ambient is pretty low, so that makes it a little easier. But then, what you can have is changes in condensation or humidity inside versus outside. I don't know if this is true, but in Colorado, I've heard that crawl spaces are one of the biggest culprits. Tell us a little bit about crawl spaces—just the 101 [about] crawl spaces. If someone is going to look at them, what could be the problem with crawl spaces?

Jim Tomlinson 26:05

Crawl spaces—we don't want to see corrugated cardboard or carpet. We've seen a lot of cases where homeowners will go in and they'll… because they don't want to crawl around. Their HVAC system may be in the crawl space. I don't like seeing that at all.

Dr. Jill 26:21

They're pulling air from the potentially worse contaminated area, right?

Jim Tomlinson 26:24

Yes. Their air handler may actually be in the crawl space, and they have to change those filters, so they'll roll out some old carpet, scraps, or what have you, or put cardboard down. That's generally a very bad idea because the relative humidity in the crawl space could go up above 50% during certain times of the year—maybe it's snow melt during the spring season or what have you—we've seen that happen. Sometimes you can have subterranean moisture [because] during certain times of the year, there are creeks and whatnot that will rise and ebb and flow, and it can cause humidity levels to rise.

Jim Tomlinson 26:59

What I like to tell customers is it's really important, if you have a crawl space, to purchase an outdoor remote weather monitor that has a humidity readout in it, a humidistat. They're about 32 bucks at Lowe's and Home Depot. You can put the transmitter in your crawl space, and you can set your display on your kitchen table, or an entry door area is a good place because you'll see it maybe once or twice a week at least. Just monitor that humidity level to make sure it's under 50% at all times. If you see it approaching 50%, I'd be concerned, and I'd really pay close attention to it at that point. There are some things that we've recommended to customers—vapor barrier installation, for example, or installing dehumidifiers. It's important to have a built-in condensation pump that will pump that water; you don't want to have to go into your crawl space and dump a bucket every few days or that sort of thing. So there are ways that you can keep that relative humidity down. But again, test it on the front end. Find out: Do you have high levels of mold and mycotoxins in your home? And are there areas that need to be invasively inspected [and] that sort of thing?

Dr. Jill 28:15

Okay, that makes sense. And I know those crawl spaces can get expensive, but it's so important. And what you mentioned too is that whether it's our outlets, our can lighting, or our crawl spaces, anytime there is a connection of air to some other part... Part of making your house safe is sealing off ways that attic air, crawl space air, or air from other places where you don't have a controlled environment can get into your house and cross-contaminate. For example, if the crawl space has something, if the crawl space is totally sealed and it has a little issue, it won't get into your house, but if it's not sealed or your HVAC is pulling air from there, it's a really big deal.

Jim Tomlinson 28:50

And even through mechanical entries from the crawl space in the attic, you can still have cross-contamination and air pressure changes. Just normal pressure changes within a home can draw some of that air from the attic or from the crawl space. So even though we don't hang out and live in the crawl space and the attic, it's still important to maintain those environments as well because there is some air transference from time to time.

Dr. Jill 29:15

Yes. I couldn't agree more, and I'm glad because people don't really think [it's a problem], they're like, "Oh, well, that's fine." Often people say, "Well, it's an issue in my master bath, but I stay downstairs most of the time." They think if they're in one

location it won't affect them, but as you and I know from the dandelion to the dried flower [analogies], if you disturb that, all of those toxins can basically distribute, and it uses the lungs of our home, which is the HVAC system. So that's one more thing. Let's go back real quickly because I think we were clear, but you talked about doing remediation if you have mycotoxins. But say that mycotoxin test, the test that is for the mycotoxins present in your home before the remediation, you actually have to go back, and what I'd recommend, and I think you would too, is that you clean the HVAC system for sure; you need to fog and bring that particulate down to surfaces and then clean. Is that the order?

Jim Tomlinson 30:05

What we do is [what] we call a 'level 2' fine particle enzyme cleaning. We go in and place a fogger that's fogging in 5- to 10-micron particle sizes. We use a plant-based botanical product that smells like clove oil because it has a lot of clove oil in it. It's completely safe for humans and pets, according to the manufacturer. I'm sure that many of your customers are chemically sensitive; they develop chemical sensitivities.

Jim Tomlinson 30:32

My wife has been battling Lyme for seven and a half years—her name is also Jill—and it's been a healing journey for us for almost a decade now. She's extremely immunocompromised, so we test our homes regularly, and we treat them regularly to make sure that she's not also having to battle mold and mycotoxins. We just did an environmental mycotoxin test a month ago, and it came back clean.

Jim Tomlinson 31:07

As you mentioned earlier, a lot of our customers are sick; they're sick from toxic mold exposure. The interesting thing is that the stats are 25% to 28% of the population has that genetic makeup. So it's not uncommon for us to go into a household where there's a family of four, and only one of the family members is symptomatic [and] the other three are fine. These individuals that are sick are dealing with all sorts of things. They have family members and friends that are maybe naysayers about mold, and then you couple that with [the fact that] there is a fairly small percentage of physicians that are actually mold-savvy, such as yourself. I think you're probably the best. And we're blessed that my wife is one of your patients as well. But it's important to convey that to the family members [who are] well. In some families, everyone gets it. But in many families, the one person who's sick feels very alone. It's really important to educate the other family members. We try to do that. We have information that we email to them that just

stimulates thought and encourages them to dive in deeper about mold and mycotoxins and to find a physician that's mold-savvy so that they can get well because, as we said earlier, no matter how well we clean up that environment, if they don't detox, they're never going to get well.

Dr. Jill 32:40

Yes, it's like this two-part approach. I love that you're saying that. Now, I know we have a comment today, and I've heard this over and over again. The best thing is to get someone in; you have to get the source. No amount of fogging or cleaning, if you don't get the source, will ever completely fix that. But there are people who are sometimes stuck for a few months or a year, or they're renting. There are so many situations that are just so sad because someone is stuck in a situation where they know there's mold and they don't know what to do and they can't move immediately. In that case, would you suggest fogging and cleaning just to buy them some time?

Jim Tomlinson 33:12

Yes. And I'm sorry I got away from your original question. When we do the fine particle enzyme cleaning, we actually place a turntable in the center of each room as we're cleaning fine particles. We have that dispersing at 5 to 10 microns—the particle size. So what happens is we work very methodically top-down, left to right, floors lastly, and we go bi-directionally on the floor. The reason for that is: Have you ever dusted thoroughly and [then] come back to the area you just dusted and there's another layer of dust on it? The reason for that is that a certain percentage of those particles are going to escape the HEPA vacuuming, escape the microfiber wipedown, or whatever method you're using to dust. A certain percentage is going to escape, and then they're going to resettle. So with this approach, those fogging particles of 5 to 10 microns in particle size are colliding with the dust particles, and they're weighing them down and falling to the ground very quickly. So it's really important to work top-down, left to right so that you don't miss anything and to be extremely thorough. The more thorough you can be, the better you're going to be because there's that relationship with mold, mycotoxins, and dust where the mold and mycotoxins stick to the dust particles.

Jim Tomlinson 34:32

Even in level 1 remediation, the last phase of the cleanup is to HEPA vacuum everything inside the containment to get rid of the dust. So it's really important to do that. But we've had 100% success with that treatment so far. And then, it's important to also follow up after, and sometimes it can take 30-60 days before

you'll have enough dust to collect the sample and to follow up and pull that mycotoxin test post-remediation and see what those levels are to get confirmation that all mycotoxins groups are in the 'not present' category.

Dr. Jill 35:07

I love that, and I love that you described it because I think this is one of those things where if you just remediate and you don't really clean the environment... Once in a great while, I'm sure that mycotoxins are not present before your remediation, and then you maybe don't need to be as thorough, which is great, but that's not super common. I will go even further to say if you're someone like me who is mold sensitive, maybe twice a year I fog just prophylactically. I did that in my office.

Dr. Jill 35:29

This is something I learned [that's] really cool, Jim, after the fires, of course, [and] all that damage. It wasn't mold but fine particulate material that was causing damage to our lungs, our brains, and everything. And as we learned after the fires, it was almost as bad in patients' labs as it was with the mold. So I got the estimate from the professional company for my office, and it was a crazy amount of money; I won't even tell you how much it was. [I said to myself], "I'm going to try fogging myself." We had our staff and people, and we actually fogged and cleaned ourselves. I think we did a great job because we all have been completely symptom-free—testing has been negative. It was interesting because we could use that same method in even a post-fire situation.

Jim Tomlinson 36:08

Sure, absolutely.

Dr. Jill 36:09

It worked really well. And I was just going to say that with my experience with that clove product you use, it was excellent—like, no reaction at all—I was really pleased with that outcome.

Jim Tomlinson 36:20

Yes. I wanted to say that, as you mentioned just now, the ultimate fine particle enzyme cleaning is pulling everything out of every closet [and] every drawer [and] decontaminating all those personal contents. When we do that level of cleaning we take photos beforehand and we try to place everything back in the same place so it's very very labor intensive and time is money, labor is money. A lot of our

customers can't afford that, so what we've done is developed hybrids, if you will, where if they have non-symptomatic family members, they're able to participate, and we can have one person there trained to oversee the project to provide all the equipment and the know-how and the technology to see the project completed. They can save a lot of money and make it more affordable. I like to tell our customers that we can do as little or as much [as they want], but we want to try to find where those lines cross and try to help you develop the best plan for your cleanup of mycotoxins and mold.

Dr. Jill 37:29

I love that because we both know the gold standard. Even me with testing too, I could do thousands of dollars of tests, but often [it's about] negotiating [and figuring out], "Okay, what's the bare minimum that we can really get good information and you can still afford to test?" or whatever. And it's the same thing with you, which I appreciate. So let's see. We talked about crawl spaces. I kind of want to wrap up, but this has been such practical information. Sump pumps and basements—we talked a little bit about those kinds of things. Let's talk really briefly about sump pumps. So basically anything, where you're below grade, is prone to water because there's going to be pressure coming through. What are some of the things you think about [when it comes to] a below-grade basement or things, in general?

Jim Tomlinson 38:09

In the past, we've installed perimeter drains in crawl spaces and installed a sump pump. [According to] our business model, we don't do that anymore; we sub that out to other companies that do that. But in extreme cases where you have moisture coming in—maybe the rising water from underground, subterranean, some creek, or what have you—that rises [where] water pressure is [affected], that's sometimes needed. In many cases, especially in Colorado like we said earlier, it's very dry here, and the ambient humidity level is usually around 20%–25% or less. So if water spills and that sort of thing [happens], it'll dry up very quickly. But I did want to point out that sump pump basins themselves can harbor mold. We've seen that many times—usually Chaetomium, Aspergillus, or Penicillium.

Jim Tomlinson 38:59

We had a customer, six months ago or so, that was on a septic system. We had a very small project: A half bath where we took out a vanity, pulled a toilet, and took up the flooring, and [there was] some drywall removal. One of the things that we'll do is put a plug in the drains so that the negative air pressure doesn't suck septic

gas and sewer gas up into the area. One of those plugs became dislodged, so when we came back to pull the post-remediation air samples inside containment, [they] came back through the roof with Aspergillus. I knew immediately what it was, and I said, "Check the plug." [They said]: "Oh, yes. We didn't see that." Someone either removed it or it came out unplugged. But it was actually drawing mold and mycotoxins from the septic tank itself into that room because of the negative air pressure. So we know that it's important, especially with empty nesters.

Jim Tomlinson 40:00

If you're in a septic system or even a public sewer system and you have a basement bath that's not being used, it's important [that with] the P-trap, either plug that area, which is dangerous if you had a leak [because] it could flood, or another possibility is to maybe run the water or run the spigot every three or four days to fill the P-trap up just for a few seconds. People think that the P-trap is to retrieve your wedding band if you accidentally washed it, but it's actually to keep those gases from coming back into the [air]. It's important to know that those gases could also be introducing mold and mycotoxins into your home.

Dr. Jill 40:42

[Those are] such practical things. Jim, this is so great. Thank you again for taking the time to share your knowledge and for all that you do. Where can people find you if they want more information? Your website, I think, is MoldServices.

Jim Tomlinson 40:54

MoldServices.com, or you can email me at jimtomlinson@moldservices.com, or my number is 719-659-5456.

Dr. Jill 41:06

Awesome! We'll be sure to include that in the show notes. Jim, thanks again for the work that you do. For those who are sick and suffering, it's so needed. We greatly, greatly appreciate all the wisdom you bring to this topic.

Jim Tomlinson 41:19

Thank you, Dr. Jill. It's an honor to be here. Thank you.

Dr. Jill 41:22

You're welcome.