Uncover Advances In Your Indoor Environmental Tests Transcript

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Introduction and Eric Althouseu2019s Background

Welcome to another episode of Mold, Mycotoxin, and Chronic Illness Summit. I'm your host, Dr. Ann Shippy. And today we get to talk with Eric Althouse, who has been involved in the research and development of advanced indoor environmental testing techniques.

He's really been moving the science ahead so that we can better assess our indoor environment. He's got 31 years in environmental air quality. He's the guy that we call.

And when we left me personally, when I got a tough problem to solve, but he's well known and in Texas and Florida, the schools, the courthouses, any anybody that knows about him and they have a significant environmental air quality problem they call Eric.

So thank you so much for your call for meeting us with us today, Eric, and sharing your wisdom. Dr. Shippy that was that was a nice introduction. Thank you so much.

It's a privilege to be with you. Oh, thank you. I really. Hey, I'm so grateful that you keep asking the questions to really be able to help people get to the answers on their on their home.

The way I feel like I do with my patients to get to the root causes in their bodies. You do it in their buildings and you just put so much heart into it and you just you don't stop until you figure it out.

So I'm really, really grateful for how you've helped me personally and patients and then how you're you're I'm really excited to share what you're up to most recently with this testing that you have available.

So thank you. And let's get some context on what what Mycotoxins are and what you're finding is the best way to to start to detect them. Sure. Well, Mycotoxins, are we can also call them secondary metabolites.

They're they're not alive. They're they're not necessary for molds like a cycle, but they are chemicals that are naturally produced by certain molds under certain conditions.

And they just happen to be very problematic to people. And so they we know that they are. They're molecular sized, but they attach themselves to mold, to mold particles and fragments of dust.

And they travel through our houses and they settle out on surfaces. People breathe some of it. Some of it blows outside, but a large portion of that ends up in the subtle dust where it can get reentry and it's available for dermal contact.

It can get on your food. There's lots of ways that mycotoxins can affect people.

What Mycotoxins Are and Why They Matter

So you've been at this for 31 years, so technology's really improved significantly in that period of time. I'd love it if you just kind of put things into context.

It's like, you know, is it kind of like on the level of, you know, where we had to have Paul Revere passing the messages along to the telephone to now we've got those like walking computer or it Oh yeah, but now we're going from just like looking for spores to now having DNA and being able to detect the DNA of the mold.

Yeah. So basically the back in the in the day we would do all types of sampling and we relied super heavily on our eyes. So and it's still important to have a good inspection, but we rely heavily on microscopes.

But now we have a lot of chemical techniques. I mean, in a large ecological I can't really set techniques where we can look for mold and and might give you toxin problems, and it opens up a whole new world of things that are there that we didn't even know that were there.

So people that are the majority of my industry is using sport trap air samples. This is a sport trap air sample. They're cheap, they're quick, they're easy.

And when they're really high result for mold, it's problematic. But we found that these things are unreliable the majority of the time the problems go under the radar and so they don't pick up Mycotoxins.

For instance, they don't pick up the fragments that I've been talking about. Gorney in 2005 says that he published a paper that said that for every spore there's probably 300 and up to 320 fragments of mold that are flying around.

So these particles are tremendously important. So really, I think we're measuring the wrong thing. In my industry, most people are using the sport traps.

We're finding out that we need to use some other things if we really want to find out what's going on. So yeah, know, and so we've got these new testing techniques because of the advancements in technology.

But I know you've also been heavily involved in like even how do we collect these the best way so that they're not just washed away or missed in the laboratory.

So I'd love it if you just let's nerd out for a minute and talk a little bit about that and then we'll start getting into the practicalities of sure, what people listening can actually do And.

Well, basically there, if a consultant is relying on these spore trap air samples and just do an air sampling, they're not doing a modern mold sampling.

And basically the the some of the problems with this technique is samples size. If you do the math, they get such a small fraction of the air in ability.

And also if you if you if you want to get a good sample, you want to look for more than 5 minutes of air sampling so small doesn't formulate constantly it it's 40 late one day and maybe it won't spoil the next day.

So if you collect the air sample at the wrong time, you'll totally miss the problem. So what we've done is we've come up with some wipers where we we have basically that's our our main platform where we are looking for ten square feet, at least of a house that a person can decide what area they want to sample.

But we we say that one of these samples will cover an area up to 30, up to 3000 square feet of the house. So basically one sample per air conditioning zone for a house bigger than 3000 square feet is a good idea.

But we're sampling at least ten square feet or whatever they want. We report in and square feet or per sample. So it's just a way that they can do it.

So it gives it a lot more statistical reliability if you have a larger sample. So there so this is something that people can do themselves or they can ask an inspector to use that instead of this poor house.

Modern Mold Testing Methods and Dust Wipe Sampling

And what happened? How is the collection done? What are they actually collecting? Oh, yeah, that's a good question. Basically, we have two different types of kits.

We have the MYCO-WIPE, which I like to do. First, this looks for Mycotoxins, obviously, and this is another wipe This is our Mold DNA Screen We call it the Health Care Panel 45 Species, or to make it easier to say HC45 And in our kit, it's it's basically a a wiper, it's a sterile mycotoxin free wiper.

And then there is a a pair of gloves an address and a transport, which is a glorified name for a baggie. And basically what a person does is they put on the gloves, it take one of our packs, here's a foil pack, it has a cloth inside interior open.

We take this cloth out and use both sides of the cloth to pick up dust from around the house, from horizontal surfaces. You take that when you get done and you put it back in.

This baggie transport and basically press all the air out of it and send it back to our lab. And basically this this is your sample number. You can write your own sample number on it if you want.

But each each bag has a unique serial number. And so that's something that we can identify anywhere. We can go back and track all that. So the advantage of this is that we're not starting with any mold on it.

Unlike a Swiffer, a Swiffer gets contaminated from production through storage, and when the lab packs it. So these are specially packaged, it's clean room just like they do microchips and it's sterilized and lots of other factors.

We do batch testing and make sure that these are clean, but both samples are collected the same. You the only mistake that a person can make is that they wipe one surface.

Will one wipe and then went back and wipe the exact same spot with the other wipe. It wouldn't find anything because these things can be picked up. So I like to wipe one half of a table, let's say with one wipe, one half at the table with the other, and that'll give you a good sample.

So I usually tell people to get the floorboards in any place that hasn't been dusted in a little while. If they think that grab dust and something that has very little dust, that could be a false false negative.

So to try to get some that. That's good advice. There's only there's only three places that we discourage people from sampling. Generally speaking, there could be reasons that they might want to do these spots, but generally we don't sample from the floor because that's it swept all the time.

People walk in. It's not really representative of the indoor environment. Typically, we don't sample over the store because it's usually greasy up there, and if you wipe that first, you might spread grease all over your house.

So we avoid that and we don't sample the lint in the laundry room. It's just just a lot of stuff that'll plug up the sample. So those are the places that we discourage.

And like you said, we we discourage people. We'd like to have at least a month's worth of dust when they collect the sample. And usually it's not that hard to find dust.

The baseboards, like you said, door frames, ceiling fans, those are some places that people might find some dust. Okay, So people can do this themselves.

And there's the basically the two tests, the ones, the one that can check for the mycotoxins and one that checks both Q PCR and for 45 different species.

So then they get the results sent back to them. What happens then? What do they do with the results? We will send the results out and they ask questions and they don't have an indoor environmental professional to help them interpret those samples.

We're glad to talk to them about those samples and and help them understand what the samples mean. But mycotoxins samples are very easy. We put the samples, we color code them red or green.

Now there's going to be a result, a numerical result. So you can see a number, but that may not mean something to somebody that's never one to run one of these tests before.

So we we put the results out in red or green. So green means is a typical house. No evidence of hidden damage. On the other hand, if it's red, it's abnormal.

And that probably means that you have either past or present mold contamination in the house. So that's that's a little bit easier for people to interpret with the mycotoxins.

So one of the things I think this can be confusing with people when they look at the results is it's kind of like how I describe peppers, right? There's like everything from a bell pepper to a ghost pepper.

And the same thing is true for Mycotoxins. So what seems like the teeniest little bit of something, Some of these mycotoxins really are like the ghost Pepper, the Kryptonite for Superman.

It just takes such a very small amount. So why don't you kind of explain that piece of it a little bit? Because they might be looking at the results and thinking, this is there's hardly anything there.

Well, that's that's an excellent example. Unfortunately, some of these mycotoxins have been used in biological warfare. One called T2 toxin causes immediate pneumonia in someone's lungs.

Fix it, a soldier off the battlefield. And so we have some similar compounds like Satcher. Toxin is one of the compounds that's that can be produced by this black mold called Starkey Waters, Tuatara, and this compound so called satyr toxin.

SATCHER Toxin. H Is it actually much more potent than even this biological warfare agent? T two toxin. It causes a whole host of problems, so it doesn't take that much.

We don't know what a safe level is. We just know that these are very hazardous compounds and the amount that is safe probably varies widely throughout a population.

Children, as you know, are smaller. They they respire more. So things that are out there are going to affect your kids for that. And they will affect an adult because they have a higher rate of respiration.

Lots of other reasons. And you know, asthma is such a huge deal in children. One out of 13 kids in America have asthma. And so we really need to protect their respiratory systems.

And this is one of the ways to do it well. And I think mold exposure is the most common root cause for asthma. So I had a situation with my mom who developed asthma, and suddenly I had an issue where I just developed as and suddenly went and looked for the mold and there was.

Lots to do. We get so used to seeing asthma, and especially the pediatricians, and they unfortunately don't have the knowledge to to start that investigation.

So I think it's really important for parents to know. Well, like you said, adults can it can develop asthma to some of these molds, like alternative. Alternative is a very common mold.

It looks black when it grows on wallboard. There's lots of molds that are black. But this particular one, Alton area, produces a toxin called Alton Arial, which we test for.

But Alton area has been associated with adult onset asthma. So there you go. It's a problem. It really is. So for for people listening, what would help them decide whether to do both tests, to do how many tests to do?

Like how what's the best way for them to start to make decisions about about testing? Well, the white tests are a great way to start. It's it can be done by yourself.

And so it's a great way to test a house without hiring an expensive inspector. Right off the bat.

Interpreting Mycotoxin and DNA Test Results

It can give you a screening whether your house might have hidden problems or not. If the question is, is there mold in a house, the answer is always yes.

Molds everywhere. The real question you want to answer is, do you have hidden water damage somewhere in the house? You have mold growth. Growth is the key word.

Or do you have some residues of things from things past that are a problem? A lot of times people will have mold ripped out improperly in a house and the the residues will go all over the house and so they can be re-exposed to these for years to come.

These toxins last a very, very long time, maybe forever. So that that's very important to consider. And so the tests are they're a great way to get started.

I like to start with the mica toxin wipe, and then I also do the HD 45 wipe, which is our mold DNA, white at the same time from different surfaces, I send them both in.

The only reason not to run both is if you don't have the budget, which is really probably not a great excuse considering these more problems undiagnosed can cost you a lot more money than these tests would.

Well, and ultimately your health. So the way that I think about it is if you can't afford it, do both because it's a little bit of a band diagram, right?

So the mycotoxin test gets a little bit different coverage than than the PCR you. 245 So to get the best picture, it really give you more data. It's it makes it less likely that you're going to accidentally miss something.

Right. Well, sometimes what people will do when they are on a tight budget, we're sensitive to that. They'll send in one of their test, say they'll send it both tests to run the mycotoxins test first and sometimes the first week.

The Mycotoxins will come back positive and they say, Well, we've got all the information we need to know. We know we have to take actions right away. On the other hand, maybe the Mycotoxins test comes up negative and they say, like you said, we just want some assurance of what's going on.

And they and they run. The rest is the 8045 is is a great tool for helping people diagnose problems with things like allergies and and people who are immunocompromised to look for those organisms that can affect those types of people.

Okay. So I think there's a lot of talk, a lot of people who are researching mold and what to do about it. I've heard about the army tests and hurts me tests.

So I love your and your thoughts and information about how to think about those tests. Every test as pros and cons. I was probably the original commercial Ermey guy I did a lot of sampling with with Swiffer is when at first I was I was told about this early from the inventor guy named Dr.

Steve Vesper at the EPA. So I had a lot of experience with it. I started noticing that the samplers were pretty contaminated to varying degrees, which can be a problem, and it eroded my confidence in the process.

See, Swiffer aren't really designed for laboratory use. They're great dusting tools. I love slippers, but they they pick up dust on the way to your house and they pick up mold spores on the way to your house.

So the question is, where did it come from? They're also bulky in the lab. They have to be cut. Typically to to get extracted. So some of the samples lost that way.

So those are some of the problems. Also, Hermes reported in milligrams per gram of dust. Typically we report in a

square footages so that we have some consistency.

We we measure out squared ten square feet and sample from that. So we have a consistent area. B those are some of the problems with Irma and it hurts me is the same type of analysis.

It's all called mold specific quantity weighted PCR sampling. It's an excellent technique. It's just that the the interpretation, the algorithm that goes with it.

Irma sometimes it has some problems. Also the, the, the, the it hurts me is a great tool, but it's, it's so limited. They're only looking at five species.

We're looking at 45 species. So we're using a lot broader approach to see if you have a problem. There's a lot more problems. There can be a lot more mold problems.

And just those five species. Now, if those five are high, if you have high Catalonian, for example, one of the five species, that's that's an indication of a big problem.

But you don't always have that even though you might have a problem hidden somewhere in the house. So I got real concerned about the the early test. They the EPA came out and said that the early test is not to be used for routine public houses and office buildings.

And so I started getting concerned about malpractice for myself. I decided I didn't want to use it. I knew it was going to get thrown out in court if if they if the EPA said who developed it, said that I shouldn't be using it.

So I quit using it and went to the forefront of it's it's it's like an army on steroids. It does a lot more. We've been through four in Texas a couple of times, and judges in Texas have challenged, have heard challenges and it's passed in Texas.

I'm not so sure about Army, so I've just stayed away from it for that purpose. But it does Army does give some good information. You want to look at those species that are there.

The thing about Irma is they they categorize molds in two categories outdoor molds and indoor molds, water damage, problem molds. The real thing about this is that all molds can be everywhere.

It's it's hard to categorize these. So basically every mold ultimately came from outside and and probably every mold on that list can grow inside your house.

So it can skew the numbers. When you have one that's growing inside your house, it should have been outside. That's an example. At some point I could show you a few examples of some of the problems that we see with the with Irma.

Oh, let's do that. This is the perfect segue way. All right. Well, let me share my screen with you. How the technology works. Can you see my screen? I can see your screen. Okay.

Let me let me show you a couple of we calculate Irma from our HD 45. It's if people want it, I don't know why they would, but if they want it, we always give it to them.

This is a perfect example. Eric So he probably read ahead of me here.

Limitations of ERMI/HERTSMI and Better Screening

I did so somebody I'll look right over here and they'll see low is their enemy score and they'll see on the chart, Oh, we got to, we can have a great environment, but you know, enough that immediately your eyes probably jump to the could.

Told me I'm at 253. That's a very unusual reading The stacking watchers here is super high Aspergillus Fumigatus. You know all about that. And that's something that can cause aspergillosis and also Aspergillus flavors.

These are all bad actors from the mold world. And so it's just a mathematical problem that this algorithm didn't work out. Sometimes it works great, but sometimes it doesn't.

So you have to be careful, but you don't want to pay attention to these scores. You want to really pay attention to these scores, to the actual counts that you're getting.

Let me see a. Couple of people. This cross authors, the score and and look at the numbers. And then if they if they do do an army and then if there's any significant amount to tell me, Stack, we know that there's something going on in the building.

Well, this one right here is one on the opposite end of scale. This is probably the cleanest sample I've ever seen. Yeah, it looks pretty good. But. But see, the way the math works out, that scale, like you said, shows up high.

So that's. That's a problem. Let's see if I have a couple more here. Here's an example of one. Where are your city Employee ones is a common contaminant in the outdoor air.

It blows inside many times, but they put it in a group, one which is indicative of water damage. So it might not have come from there. In this particular example, the whole army scores high.

You had this high number here, but if you took this and put it down here and group two where it belongs, it would change the number from high to to something lower.

I think I'd do that. People are our audience. I think you're probably. They know of this. No, I think they're I think having the visuals is really helpful so that it's not just so esoteric, but can also see you going to the art and interpreting the tests like it really does.

Yeah, it is helpful to have somebody who has read a number of these and then been able to correlate with both. In Did the House have actually end up having a hidden mold problem?

And then also how did it relate to the patients getting better? Well, here's some of our results from our mold DNA screen, The HD 45. This was done at a house at two different times.

This was prior to some remediation. And this is after some remediation. And so you can see that the scores dropped quite a bit. And we we can look at these like this is a this ultra area alternative, which I talked about earlier.

This a tremendous drop from 11000 to 46. I would say this is an ineffective cleaning. You're never going to get zeros or you rarely get zeros across the board after a cleaning, but you're looking at maybe a 95% reduction.

But if you do the AMI scores on this, there is really no change here. Is a medium high even though we had a a huge reduction, they're both medium high.

So that confuses a lot of people. A lot of times they did have another this is a little more complicated. It seems they had some hidden water damage that that popped up in the middle cleaning and gave them things like aspergillus versus color that they didn't have prior to cleaning.

It was just one of those unfortunate things that they had stacking. Yeah. And so so these these tests pick up those problems that you might not see other where Yeah.

Otherwise I mean that's such a good point. Right. The whole remediation process, any time you do construction there is the opportunity for creating a new problem I guess I've seen that with patients and really getting the contractors to understand or what we're trying to achieve and getting that.

I am an expert and the right expertise to do it and that's great. So, so they're not completely straightforward to interpret. So I think that's one of the things that's helpful about about your company is that you are helping with the interpretation when when it's not obvious.

That there's a problem. You know, there's so many conditions that can pop up. It's important to have the some expert consulting. I think the worst thing a lab can do is just give somebody some results and leave it with them without them really understanding what they mean.

And so one way or another, we've got to get people that help. So if there's anything more about Mycotoxins that you'd like to explain, this is probably a really good time to do it. And then I'd love to to ask a few other questions that have to do with just your years and years of experience in this field.

Well, sure. I saw a slide I had made up. Let me share my screen one more time, please. And this is this is a question I get a lot. And you see this These are these are mycotoxins that we can check for.

But this is a list of molds that are commonly in food. And then other molds that are commonly indoor environmental. Again, mold can grow anywhere they want.

And to say that certain molds could only be in food would be not correct. And so anything that can grow on food can probably grow indoors under some conditions and vice versa.

But it doesn't always happen. These are some these are the generalities. Aflatoxin, M1. A lot of people talk about this. This is not in environmental contaminant in houses, aflatoxin in one the M stands for milk. And so this is something that you would get from drinking milk that's contaminated.

And so that's that's one of the things Aflatoxins we've checked a lot of places. I'm going to show you a picture just because it's kind of fun. This is this is a house.

This is probably one of the oldest houses that you'll ever see. You see that wall? Oh, my goodness. Oh, I hope you didn't go in there. I had to go in, but I don't know.

I know enough to go in with all the property. You had all the gear. I wasn't living there, put it that way. Oh, my goodness. But I'd a the scientist in me, I couldn't resist that with this.

You like that ceiling tile. I mean that ceiling fan. Oh that's not paint on there. That's how that's. Collected so much on that surface. I don't. Know.

It's just, just the way it was. Just the material that just just soaked up the water. So it was pretty contaminated, too. Well, maybe. But they had a they had a major pipe break and they didn't get to it in a timely fashion.

So this was a place where sometimes we like to we have lots of controlled samples. Well, we go to houses that we are very certain that they don't have contamination.

A lot of there's there's some reason that we have a have a method of picking these controls. But I also like to pick houses that are on the opposite end of the spectrum to see what we'll get.

For instance, that house I ran a sample just for curiosity's sake, and we checked for about 20 different compounds from mica toxin that. When you did that, did you sample directly from the mold?

No, I sample after the dust, the dust in the house. And so there was this was a good indication we we checked for 11 different groups or families of mycotoxins.

And of those 11 different families, nine of those were very strongly positive, as you can probably imagine. But interestingly. Within the mold party happening.

That's right.

Mycotoxins in Buildings, Food, and Health Effects

Well, we didn't the interesting thing is we didn't see any aflatoxin and we didn't see any toxin. A And that's pretty common. We don't see those in water damage houses as often as you might think.

Okay. Toxin A We find in about 2% of our samples and so in our samples are heavily skewed toward water damaged homes. So it's just not that common. It's not impossible to have in a house, it's just not very common.

Aflatoxin we see about 4% of its talks and B one, etc. Some of these others, these are very common in food. The Don, they call it bomb and toxin like pigs farm and it is disgusting is that is some of these other toxins T two toxin I mentioned earlier, it's a very bad compound but it's just found in in foods typically it's generated by a mold called some of the mold species of poo cerium zero unknown is one that we occasionally see.

It can be found mainly in food, but we can sometimes see it in buildings. And then let's flip over to the other side of the screen. That alter an area is very common.

ALTER An area alternative grows on on cedar trees in your part of Texas and it it grow it the spores to get inside houses and they grow inside in water damage sheetrock in a lot of other places.

You recognize some of these and other ones. Citron And we talked about the truck path scene groups of the statue toxins. We mentioned that one of the compounds we checked for is called Starkey Bartra Lactam.

So with with wood screening houses, we use Starkey Bartra Lactam is a great screening tool because only about 30% of the strains of Starkey batches are producing macro cyclic trikafta scenes at any time.

So that means you might have Starkey batteries, but the trick of the scenes may not show up on a particular date in your house might show up later, but at that particular time there might not be any. There.

On the other hand, Starkey Butchers produces this. Thank you, but you're locked in like crazy 100% of the strains produced. Thank you. But you like them so it's a very good indication if you have hidden mold, that we can do our black mold screen for Starkey.

But you like them and pick that up and see if you may have some hidden Starkey virus damage in the house, which is serious. And so that's that's a great screening tool.

The other one that we check for is called String Assist. And this is the most common mycotoxins indoors. It's usually produced by Aspergillus first color, but we found that commonly as well this year.

I'm glad you showed this report because one of the things that I find is that people do it does help even when they're having massive exposures to indoor mold, to modify their diet.

Like I really prefer people don't do the dairy and that they avoid the the high mycotoxin foods, which would be grains and nuts and chocolate and coffee.

I'm those. Yeah. So so doing a pretty clean diet as a foundation to not be putting the mycotoxins in the body that way can be an important part of the healing process.

So thank you for bringing that up. Sure. So anything else you want to share about testing? Mycotoxins So I move into my other questions. I can't think of anything to write off, but people can always reach out to me.

We're glad to answer any questions. The great resource I, you know, just hear back from people all the time how, how helpful you've been, so you're so generous and so kind of people.

So I know that one of the areas that you're really, really helpful with is when when schools have been impacted with mold. And as you mentioned earlier, our children are so much more susceptible to illness from from mold and mycotoxins and so I love for you to share some of your stories about schools.

And, you know, when when parents are suspicious that they're that the problems actually coming not coming from their home, but actually coming from the school, what are some things to think of are because your you know, I know you've helped so many thousands of children by the work that you've done in schools.

Well, when I was much younger, I was the environmental health and safety director for all of the flora schools and colleges and universities. And somehow I survived that with it.

That killed me, that it was some 3 million kids that I was trying to keep up with. And so we learned a lot of things. Schools can have problems a lot of times.

And you start talking to people and you start seeing generalities. You know, it's usually not just one child. It's having a problem. A lot of times there's several children and staff members in an area that are having some issues.

Most of the schools do a pretty good job in there, and most of them really care. But the thing that they don't have often is a budget and they often don't have parental support.

I think if I can give people one bit of encouragement, I would say don't underestimate the the the custodian at the school. The custodian is usually the least paid these depreciated person in any school district.

And if they get a they rarely get any praise. So if you want to help kids praise the custodian when they're doing a great job, that's a that's a good thing.

And then try to to come up with some some partnerships and groups to work together. They they're usually very resistant to do testing in the schools. But people can give me a call and I could talk to them about specific problems with the school.

But it is a it's a huge problem. I'd love it if you I don't know. I don't know what stories you feel comfortable sharing. But just like some of the most common things that you see and and or mistakes being made in school so that parents that are involved in the PTA or the parents groups and maybe put a shine a light on that, like what are the things to kind of be looking for?

I know you've seen I remember you talking years ago about air conditioning systems that were installed incorrectly and then creating moisture problems and all the detective work behind that.

And, you know, you've got some things that you're working on now. There is the traditional things where there has been a roof leak and it hasn't been repaired properly.

I think to me that's one of the biggest things I see in the schools is there was some type of a rip lake and he just replaced the ceiling tiles and never really even the ceiling tiles.

Sometimes they paint over the ceiling tiles. That's even worse. Oh, my gosh. So I just with your expertise in the schools, I'd love it if you'd just go over some of the things that you think parents could could really focus on what to try to keep their kids safe in their schools.

Well, every parent has a nose and if they smell a musty smell, it's a huge red flag. When there's a musty smell, there's always something going on. And so that that should trigger some type of an investigation.

It's good to look for trends.

School Mold Problems and Child Health Risks

Like I say, a lot of times people don't communicate with each other, but the EPA has something called the tools for schools. They have a lot of good guidelines in there that parents can use.

I recommend that it's not perfect, but it's it's a good start. But just trying to. Help clear about this being a problem. I mean, this the studies looking at children and obviously it's affecting the staff as well, but like lower IQ and then all the other health problems with that.

Well, there's lots of things a lot of states don't have integrated pest management. They spray pesticides all over everything in schools. Fortunately, my state I've got something called integrated pest management, which is safe and effective pest control implemented in Florida schools and then Texas actually mandates it.

They got a law passed where they have to follow IPM techniques. But basically it's it's basically using the least amount of the least amount of pesticide that'll do the job and trying to do exclusion, keep these pest out and not give food.

A food is a huge problem in classrooms. They feed kids way too many snacks. I am a snacker, but it's they reward kids with food these days. And so having kids eat in the classroom is really a bad thing.

It's good to try to at least clean up every day. And so programs get the pests coming in or the rodents, and then that can be part of what then triggers a mold problem, Right?

Exactly. Okay. That's much less like the adding to the toxic load with the with the pesticides to keep things under control. These these pesticides are in the neighborhood.

And so toxicity of the mica toxins. So that's what we've done studies on pesticides in schools and the places that they spray, the pesticides, the pest aren't really they don't have any real effect.

The well, the C, the the, the like, say, cockroaches, as an example, a female cockroach is in her harbor age with her young. She doesn't come out until after those young are out.

The ones that are out or the are the males and they're not they're not creating the new population. And so when they spray, let's say you kill one of the males, it's really does no good.

So the better way to do this is use baiting where the the males go out and they pick up some poison is very low toxicity food that they take back. It kills them over days and they take it back to the garbage area and they feed that to the rest of the group.

And so that kills off the cockroaches. Kind of a nasty topic, but it does it cockroaches are an important asthma trigger that like you were talking about earlier.

Right. It all ends up working, working together then. You know, you're such a great detective. Like I love hearing, you know, when you're working on one of these cases and, you know, having to really, you know, use the science and engineering and all the airflow kinds of things and really do the detective work just it is a prevention.

Like, I love this. Like if you're working on pesticides, use the baiting for the roaches instead of the spraying as far as like doing the prevention in the home, I know you think that I have found that humidity control is super important.

I love if you talk about in any of the other preventive kinds of things that people can do know once they've gotten in there in their clean environment, what do they do to keep it clean and and really do the prevention?

Well, the main things are keep up with your HVAC system. You've got to change the filters on the schedule. You've got to change those in a you might want to use the the most restrictive filter that you can use because it might damage the equipment, but you want to use high quality in the air and you want to do routine maintenance on the air conditioning.

Those things need to be cleaned routinely. If you clean the filters. I mean, if you change the filters, the ducks will stay clean and you won't have mold in the ductwork.

And then I'm not a fan of cleaning ducts. Typically, most air conditioning systems in homes across the United States are fiberglass duct board with flex duct.

This stuff is porous. It's not very easy to clean. I usually say replace it if it gets moldy, trying to go in there and bang it around with something and clean, it is just not very effective.

In fact, it might make it worse. So back to the air filter. You said less restrictive. Can you be more specific on which level filter you think is the best?

Well, and this is not a plug for certain company, but I like three in brand. I've had good luck with those in my own house. There are others out there.

I'm sure, but they they have a rating system and they rated from 800 up to I think it's like 2700 and I like 1900. I like a very dense pleated filter.

But with those ribs, they're not very expensive. If I have a choice, I'll go to a four inch filter. If if I was installing a new air conditioning unit, I would put four inch filters in my house.

HEPA filters are even better. If you can afford those, go for it, but you can probably afford the four inch filters and they do a great job. And then how often should they be changed?

Well, whatever the manufacturer recommends, they're usually on the label, on the label of the filter. It probably says 90 days. Some of the four inch filters can go up to a year.

They don't have to. They have so much surface area, they have to be changed. A dirty filter will actually filter better than a clean filter, but there's a limit to that.

You can get so much dust that it restricts airflow and damages the system and caused lots of humidity and moisture problems. And what else? As far as prevention and maintenance, I know you're an expert in Dehumidification, so my love, if you touch on that, because I think that's been a game changer for me personally.

Well, Demystification is a tough thing. We live in the South and so in the humid and the humid cell molds a tremendous problem. But it can be a problem anywhere that the mold doesn't grow as easily as people think.

It takes about 70% humidity at a surface for a mold to grow.

Prevention: HVAC, Filtration, and Humidity Control

Now there's other reasons to keep humidity lower, but somewhere between 30 and in the maximum 60% gives you a safety factor. Even 50%. Relative humidity is good.

But that's that's one of the things. If you live in the humid cell, you want to keep your fan in the auto position. There's a little switch on your air conditioning unit that that says on your auto, you want it in auto.

It gives you better humidification. And those are you know, those are some of the main things you can get it to dry in some parts of the country and you start to have nosebleeds and things like that.

I don't like to have I like everything easily maintained. So up north, a lot of places will have humidifiers where they'll actually add humidity in the wintertime, which is a fun thing to do.

But I like to add it not into my air conditioning and heating system and furnace. I like to added an individual humidifier, something that I can watch and control.

And these are cheaper too. The problem is in the off season, in in places, you know, like Pennsylvania, Wisconsin, these humidifiers are reservoirs for microbiological growth when the system's not on.

And so I'm not a big fan of that. Of course. At the humidifiers. Humidifiers. I like it. I like a stand alone, not one that's hooked into my system. The same with dehumidifiers in itself.

I don't like dehumidifier as hooked into my air conditioning system directly because a lot of times the fan for the air conditioning system is so much more powerful than the fan for the dehumidifier.

So when they're both want to hook together, what will happen is the air will go backwards through the dehumidifier, eliminating any good that you got out of it in the first place.

So I like to have those separate and independent and and that can be a good thing. Well, those are really helpful tips. Thank you for that. Sure. I would love to ask you one more question.

So, you know, with these with these hidden problems that, you know, then everything looks so pristine, there's new clues to to where the mold actually is.

But, you know, there's mold because the testing has come back positive. You know, patients are and people are sick in that building. What are some of the interesting things, interesting sources that you found that kind of surprising is surprising sources of where the mold is hidden.

You know, you've got some great stories. Well, I'm going to share something with you that'll be a scoop that I don't think anybody's ever reported on before.

And I've never talked about it publicly, is that let me talk about insulation in houses, even new houses. This is this is some insulated ation that is in most people's house.

And this is okay. This is fiberglass, white and pink. You may have spray foam, but that's usually not too big of a problem. Fiberglass can even come in a real dark color.

But on the other hand, about 5% of our houses have insulation like this. This is cellulose insulation, and this stuff can be loaded with like toxins even when it's dry and even when it's new aching, it can be a big problem.

But this one is from a 1950s house. It's called Balsam Wool. This one is from a brand new house. Now, cellulose insulation may look like ground up newspaper because that's what it is.

They just take the newspaper and they grind it up and make it insulation. Now they put things in it to keep mold and growing in it. All they do, they put in. It or it's in there, but boards don't have any effect on the Mycotoxins I don't believe so.

My preliminary research is showing that this is a major problem because when this stuff is in the walls or the the attics of these 5% of the US houses, which is millions of houses, this stuff ends up in people's breathing zones and the mycotoxins is loaded.

We can get a sample of this from them and we can sample it from Mycotoxins. But you'd be surprised how often it has mycotoxins in it and usually so much surface area.

This stuff that even though it's in an attic, it still makes its way into wind pressures. So can people send those types of samples into the lab too? Yes, they can.

This is probably a lot more than we would need. We only need maybe the size of a ping pong ball and we can we can sample that easily, recommend people grab it from three different locations so it's more representative.

But yeah, we can certainly sample that for Mycotoxins, just like we would do anything we can sample kinds of

things from like a toxin, but we just rely on our wipers mainly because they're easy.

And then if it comes back positive, you just really need to replace that insulation. Right? Which is in the attic. It might be easy, but in the walls it might be tough and you might have to manage it in place or you know, for some people they might not have a choice but to move out.

Hey, any other interest? That's a really good one. Any other kind of interesting situations that we've seen on the head? Mold on the hit on. On where the hidden mold is.

oh hidden mold. You know, one of the biggest things, if I were building a new house, I would use mold resistant sheetrock or any time I replaced sheetrock there, there are multiple brands and they vary in that mold resistance.

I like Georgia-Pacific. It's one brand. They have a one called DensArmor plus D E N S Armor plus. And I can't get mold to grow on that stuff. So it's a great.

Hidden Mold Sources and Building Materials

That's different than magnesium oxide board The magnesium oxide board, actually. Yeah. I understand that there's some lawsuits in Europe over magnesium oxide board.

It magnesium oxide board is a great product in that, you know, it has lots of advantages. However, magnesium oxide board I understand can can draw moisture from the air.

So while mold won't actually grow on it by itself, it wets everything around it, all the insulation around it, it grabs moisture from the air and collects on that board and that can cause mold problem.

So I don't I'm not a fan of magnesium oxide board I'd rather use something else. Well, that's a great tip. Well, Eric, thank you so much for all you've done for advancing this field and helping to develop these really helpful tests to get to the root of the matter on where the mold exposure is.

I know you're doing something really special for our audience, and I'd love you to share that. Oh, well, we we have we're going to have a landing page.

If you go to our Web site, it's blackmoldlab.com/summit. We're going to be offering a 5% discount on our test. And then we have a couple of we have three different pieces of literature that people might find helpful.

One is about buying a house. What would I would look for prior to putting an offer in on the house? These are things that a person can rule the House out before ever getting into the whole process.

So many houses by going through that process and it's not that hard to do. I also have another document that that gives some tips on what I would look for in in renting a place.

So before you get locked into a lease, here's some some tips that I would do prior to that, even prior to any testing. And then finally, we've given a list of all of the health effects for the molds summarized for 45 species list for HC45.

So molds, as you know, can hurt people three different ways. They can cause allergy and asthma. They can, which I think probably all the molds they said that can cause this to certain people.

Second, some of these molds can cause infection and in sensitive individuals or or immunocompromised individuals. And a third way would to understand better than most doctors is the toxic effects.

And so we list which molds are toxin producers on that list. And so two easy checklist for people to look at. It's a great resource So your website blackmoldlab.com/summit there will be 5% discount for our listeners and the code is SHIPPY Yeah, that's right.

All right. Well thank you so much for doing this. I know it's it's you know you put so much love and effort into into developing these tests that really get good data.

So I'm excited to share it with everybody and for people to be able to have access to it. Well, thanks for all you do. It's a privilege to be with you.

Dr. Shippy. Thank you so much. Okay. Talk soon. Okay. Bye.