Managing Mold Illness in Children; Sandeep Gupta MD, Scott McMahon MD

1) 0:03:30 – Prevalence of CIRS in children

A) An Evaluation of Alternate Means to Diagnose Chronic Inflammatory Response Syndrome and Determine Prevalence March 2017 Scott McMahon

(1) I took what was already in the literature from the United States government publication and what Dr. Shoemaker had done and distilled it down to a certain number of symptom clusters and a certain number of abnormal labs out of the standard ones that we do.

B) The other study that I did was looking at visual contrast sensitivity in children

(1) Pediatrics Norms for Visual Contrast Sensitivity Using an APT VCS Tester May 2017

(i) The pediatric VCS norms calculated were the same as the manufacturer's reported norms for adults.

(ii) Pediatric CIRS prevalence in this cohort was calculated as a minimum of 7.6% and a maximum of 12.7%.

(a) At a minimum, 7.6, or one out of every 14 children has this illness. At the maximum from what we have, somewhere around 12.5%, 12.7%. That can mean one out of every eight children.

(b) That means in everyday that a pediatrician is seeing a full load of patients, he's seeing three or four kids that have CIRS and may not even know about it.

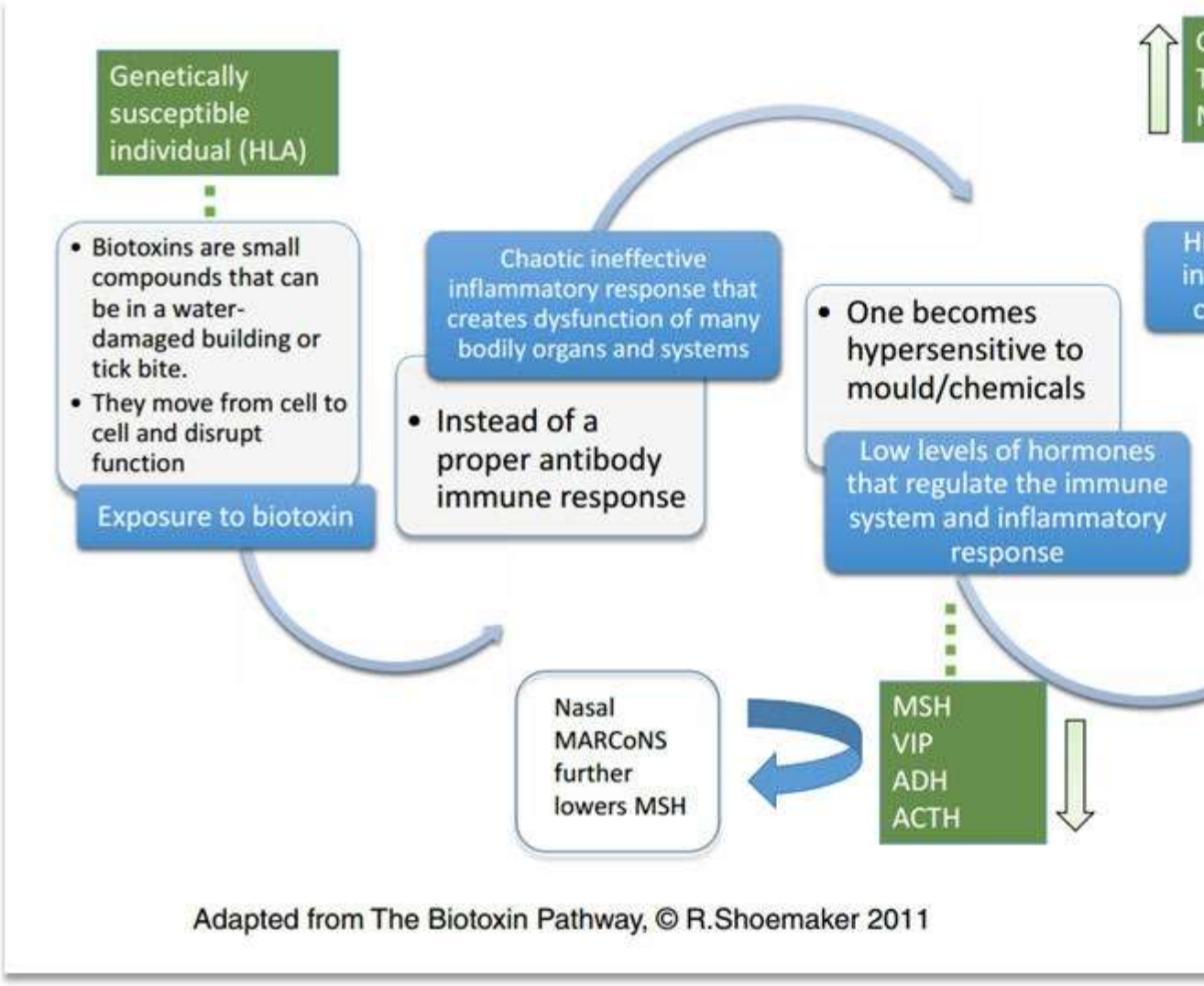
1. "Where are all these children? How come nobody's picked it up?" Well, again, if you know about pediatrics, you know that one of the most common problems that we have is chronic abdominal pains.
2. When I take those functional children, and this is something that I'm hoping to publish later this year, when I take those functional children and I work them up for CIRS, nine out of 10 have CIRS. This is one of the biggest problems in pediatrics and nobody knows what causes it. I can say that almost the identical thing about chronic headaches and it doesn't matter what kind of headaches. Whether you're looking at chronic daily headaches or cluster headaches, migraines or tension headaches, nine out of 10 people that I evaluate for CIRS that have chronic headaches end up having CIRS and

01. when we treat them, they get better.

(iii) Pediatric CIRS prevalence is on the same order as pediatric asthma.

(iv) We didn't see any difference between kids who had asthma or didn't have asthma, or for that matter, any other chronic illnesses.

I) 0:10:54 – The biotoxin pathway made simple



A)

(1) Start on the left-hand side of this diagram, you'll see that biotoxins are small compounds that can be brought into the system or into the body through a
(i) water-damaged building or otherwise known as a moldy building or a
(ii) tick bite, most commonly.
(iii) infected bodies of water
(iv) spider bites
(v) and so on

(2) These are compounds that move from cell to cell and disrupt the functions of cells. So they don't live in the blood.
(i) They're mainly in the cells and that's one reason we don't actually have a blood test looking directly for mold toxins in the blood.
(ii) It's because they're not actually there.

(3) Genetically susceptible, now this is another really key point, that not everyone is susceptible to developing CIRS.
(i) If you have this genetic susceptibility, then instead of mounting a proper antibody response, what happens is we tend to develop a chaotic and ineffective inflammatory response that creates dysfunction of many bodily organs.

(ii) As a result of the silent fire, which we call CIRS, many people become hypersensitive to mold and chemicals. If you have CIRS or if a child of yours has CIRS, they may go into a building that seems fine for other kids or for other people and they may say, "I'm not feeling well, mommy. I'm not feeling right.
  (a) My head's hurting.
  (b) My tummy is hurting
(iii) Those kind of symptoms may be thought to be emotional.

(4) It may be because there's a silent fire going on in their body of inflammation and that they're much more sensitive to mold and chemicals than other people would be. So as a result of this whole fire of inflammation that's going on in the body.
(i) We get high levels of certain inflammatory compounds,
(ii) which you can see over here on the top right of this diagram.

(5) The main inflammatory ones that you need to know are called
(i) C4a
(ii) TGF-beta
(iii) MMP-9
(iv) These are inflammatory compounds that are fueling the fire of inflammation in the body.

(6) We're also getting low levels of hormones that normally would dampen this fire. They include
(i) MSH
(ii) VIP
(iii) ACTH
(iv) ADH

(7) As a result of these hormones going low, particularly MSH going low, we tend to get a special bug in many patients with CIRS that gets into the deep nasal passages and that's called Multiple Antibiotic Resistant Coagulase Negative Staph (MARCoNS).
(i) MARCoNS, that tends to *further lower* MSH hormone.
(ii) That blocks you from getting better from this illness.
(iii) So it's important to know whether you've got MARCoNS so that you can eradicate that and then your regulatory hormones such as MSH have a chance of coming up.

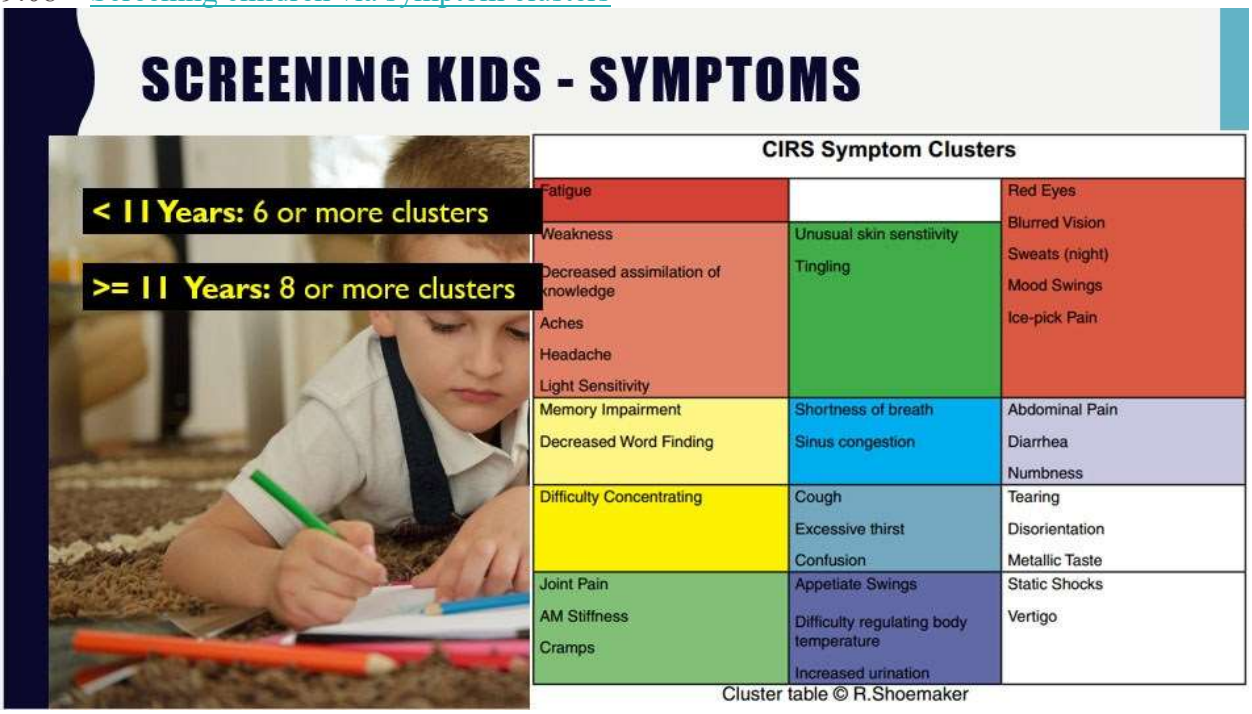
(8) As a person gets exposed over and over again, whether that's
(i) Lyme that's still inside them or they're
(ii) living or working in a water-damaged building, as they continue to inhale
  (a) more toxins or
  (b) bacterial endotoxins or
  (c) inflammagens like
    1. beta-glucans and
    2. mannans and
    3. what not.
(iii) Those things are actually triggering their own immune response and
  (a) because the immune response is not handling those properly, that
  (b) immune response actually gets bigger and bigger and bigger and bigger as time goes on.

(iv) I think that's part of what we see with "sicker quicker" is just repeated exposures.

2) Screening & Diagnosis

II) 0:19:08 – Screening children via symptom clusters

A)



B) Simple ways of doing so is through using what we call the symptom cluster table.

(1) This is something we use in adults as well.

(i) In adults, we tend to use the cutoff of eight or more clusters, tends to be of highly indicative of CIRS.

(ii) While if you have four or less, that tends to be very indicative that the person doesn't have CIRS.

(iii) Six or more clusters (<11 yo) as being an indicator that they may have CIRS.

(a) Inability to get potty-trained by six years of age and

(b) Inattention when they go to school.

1. ask the parents, "Does your child have difficulty focusing on a single task compared to other children his age?
2. Do you see that he's just running around all the time and can't stay on task or
3. Do you see that he's able to do something that he enjoys and stick with it?"

(c) Sometimes there's a little bit of guesswork involved in this kind of cluster evaluation when it comes to kids

C) 

(1) In children under 11 years old, they often may have single complaints.
   (i) When the babies are born, you assume that they're not having any system problem because they certainly can't complain about it.
   (ii) By the time they become teenagers, usually we see the classic multisystem, multi-symptom illness that is Chronic Inflammatory Response Syndrome.
      (a) Early on, when children are having symptoms that they're having problems long before they get to multisystem illness. Again, in children under five, I look for
      1. chronic headaches
      2. chronic fatigue and
      3. abdominal pains.
         01. When they come and they complain about them. I say, "Well, how long have you been having these belly pains?" "Well, six months." I'm like, "Wow! That's a long time."
         02. So, in children who are under six, we look for headaches, fatigue or belly pains. Any one of them would make me start thinking about CIRS. If they had two or all three, almost every time, it's CIRS.
         03. In children under 11 like I said, I would add a few other things in there, the inability to potty train by six years of age, which usually is an antidiuretic hormone deficiency.
      4. If you treat the CIRS, you see the inattention go away.
      5. Myalgias, muscle pains.
         01. They go on and on and on.
         02. It's okay to have growing pains when you're going through a growth spurt, but
         03. that should last only a month or two. It shouldn't be going on two to three months, six months
         04. By the way, those kids are going to go on to probably have fibromyalgia

III) 0:24:44 – Screening young children with single complaints

IV) 0:30:50 – CIRS and Autistic Spectrum Disorders

A) There is a tremendous amount of overlap between the symptoms that you see in CIRS and that symptoms that you'll see in full-blown autism, on the far end of the autism spectrum.

(1) Many, many people believe that autism and the entire spectrum is a toxin-based illness.

(2) The prevalence of autism is skyrocketing.

(i) Five years ago, it was one in 88 kids.

(ii) The most recent thing I read was one in 66.

(iii) Remember, CIRS is at a minimum one in 14 and maybe one in eight and possibly even higher than that.

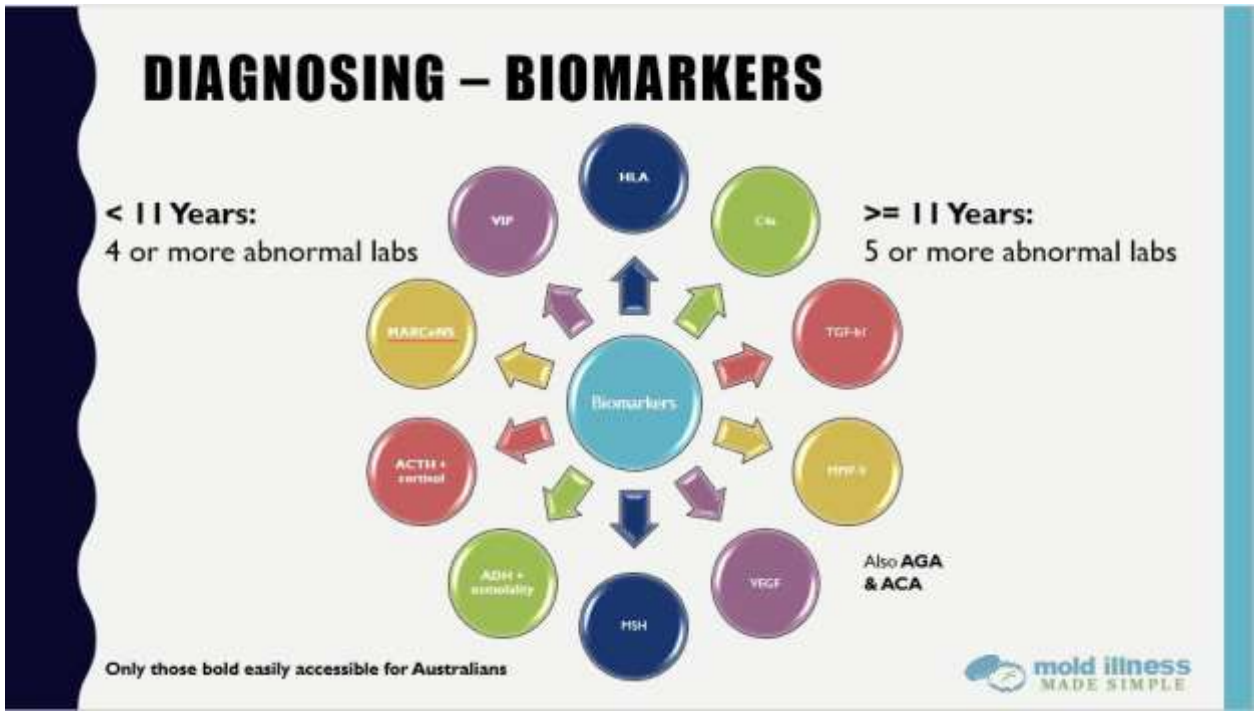
V) 0:32:50 – Screening children via Visual Contrast Sensitivity (VCS)

A) 

(1) The same level of abnormality shows up in kids as it does in adults.

(i) A score above five in the D row or the D column and a score above six in the C row or the C column

VI) 0:34:42 – Diagnosing via Biomarkers

A) 

(1) <11 yo; 4 or more abnormal labs
(2) >11 yo 5 or more abnormal labs

B) With either a positive cluster analysis or abnormal VCS. Would you say one of the two would be sufficient to then want to pursue further diagnostic tests?
(1) Yes, either abnormal is enough to warrant pursuit of CIRS
(2) Both tests do not need to be abnormal.

C) The tests are basically the same that we run in children as we run in adults.
(1) You might do a slightly smaller panel of biomarkers in children initially and do frequent smaller blood draws instead of one complete draw in children.
(2) In a five-year-old, I would do it in two separate blood draws, separated by maybe a week of time so that I don't take too much blood out of them.
(3) Also, some of the tests that he's running in that larger profile looking to rule out diseases that don't routinely happen in children like type 2 diabetes or lupus or other rheumatologic disorders. So I'm looking specifically to show that they do have this illness.

3) Treatment

VII) 0:38:25 – Treatment introduction

A) The good news is that younger children often get better quicker or faster than adults do.
B) Children, particularly five, six, eight years old, seeing them with one system is involved instead of having to do cholestyramine, the powder, for two or three months,
(1) I can treat them sometimes in two weeks and they'll be completely back to normal.
(2) They have 100% resolution of their symptoms.

VIII) 0:40:30 – Treatment – Removal from exposure

A) 

B) The most important step of the CIRS treatment program in kids or in adults is removal from exposure. So in the case of water-damaged buildings, it means getting into a building, which means home and school building, that is safe from a water-damaged perspective.
   (1) Really in general, that's going to mean a house with an
      (i) ERMI that's less than 2 or a
      (ii) HERTSMI-2 score that's less than 11.
      (iii) From an ERMI you can calculate a HERTSMI-2, but I use both.

C) Yeah. When we see new patients, we always go through what their environments are like.

D) When I find that patients have problems in their homes, what I usually recommend is that they hire a contracted licensed mold inspection agency to come in, take a look, find where the problems are.
   (1) They'll create a remediation plan.

E) The idea is to find out where the problem is, and then get a licensed contractor that has mold remediation expertise in to take care of it.

F) you also have to look at the HVAC

G) You really need to get an IEP, which is short for Indoor Environmental Professional, that is familiar with CIRS and familiar with the level of cleanliness that a home or a school needs to achieve in a patient with CIRS, if you're going to get proper advice.

H) it's really important to ask them a bunch of different screening questions to make sure that they understand this illness and understand how to work with ERMI testing rather than just air testing

I) One last thing I'll say about that is on the Surviving Mold website, there is a consensus statement that was put together by yourself and myself and a number of other CIRS doctors and some IEPs

IX) 0:48:20 – Treatment – Binders & MARCoNS

A)

B) If your child is younger than the teen years, it's less likely that they will have MARCoNS. Therefore in most cases, it probably isn't necessary to pursue that step of the treatment program.

(1) I do test MARCoNS in children if they're not improving the way I expect them to.

C) CSM dosage in children is different for adults.

(1) The dosage is 60 mg/kg/dose three times a day.

(2) We use that same formulation up to 120 lbs children or 55 kg children. After that weight, we start to use an adult dose of 4 grams four times a day.

(3) Delivered in;

(i) Water

(ii) Orange Juice

(iii) Orange juice with pulp

(iv) Mixed with food

(v) Apple sauce

(vi) Banana and an apple and some grapes in a blender with just a little bit of liquid.

(a) It could be juice or water.

(b) Buzzed the blender up and Poured my dose, which was a full scoop, three teaspoons work into that and mixed it up.

(c) Put just a little bit of grape juice, one or two teaspoons to make it drinkable.

(d) Just drink it right down.

(4) CSM Tips
(i) Empty your mouth before dosing
(ii) Drink it down fast
(iii) Rinse mouth after—CSM can harm teeth if it sticks to them.
(a) Can even brush teeth after if necessary
(iv) Constipating
(a) Magnesium as needed for constipation
(5) Alternative to CSM is Welchol 1-3 tablets twice/d
D) BEG Spray for MARCoNS
E) For patients <19 yo, can see 70% improvement in >90% of patients just from the two steps above, CSM & BEG after removing exposure

X) 0:56:30 – Treatment – Full Shoemaker Protocol & VIP

A) 

B) Start VIP at a 1:10 dilution for young children and titrate up to effect
C) DDAVP spray or tablets can be helpful for diabetes insipidus as well but requires periodic monitoring of the Na/renal status

XI) 1:00:07 – CIRS & Children – Closing Observations

A) 

B) Principles of diagnosis and treatment are basically the same with some slight variations.
   (1) There's less symptoms
   (2) Generally test less biomarkers in young children.
   (3) The dosage of some medications is slightly different
      (i) Some are not used.

4) Q&A

XII) 1:01:30 – HLA positive parents and being proactive
   A) When I see somebody who I'm thinking might have CIRS but I'm not convinced and the parents are not convinced is I'll do the
      (1) HLA
      (2) ADH
      (3) Osmolarity
      (4) ACTH
      (5) Cortisol
      (6) Consider
         (i) MSH
         (ii) VIP

XIII) 1:04:15 – Multi-susceptible HLA and Lyme vs Mold
   A) For a child with a multi-susceptible HLA who's experiencing symptoms of CIRS, how do you differentiate between Lyme disease and mold?
      (1) DNA Connexions, where they're actually doing DNA and rDNA.

XIV) 1:07:25 – Adolescent mental health challenges
   A) In your previous podcast, absolutely, we see that.
      (1) The brain *is* on fire.
      (2) I once asked Dr. Ackerley, "What mental illnesses can be caused by inflammation?" She said, "All of them."

(3) MSH deficiency; their blood-brain barrier can no longer keep the tight junctions that you're supposed to have, now you start getting loose junctions, you start getting toxins and inflammagens into the brain. They will create inflammation in the brain.

(i) That's what we see on NeuroQuant.

XV) 1:09:42 – ERMI vs HERSTMI-2 accuracy

A) If one gets an ERMI and it reveals an unacceptable score of 4.9, but when calculating the HERTSMI-2 from it and results in a score of zero, which score is considered more accurate?

(1) I would probably go with the ERMI.

(i) It's possible that you could have an ERMI that had a very high level of one of the 26 molds, which is not one of the five that we look at with HERTSMI.

Table 2

Range of toxins, inflammagens, and microbes found in WDBs		
Mycotoxins[33]	Gram-negative bacteria[38,40–42]	Hemolysins[13,35]
Bioaerosols[34]	Gram-positive bacteria[38,40–42]	Proteinases[13,35]
Cell fragments[35]	Actinomycetes[43]	Chitinases[13]
Cell wall components[35]	Nocardia[38]	Siderophores[13]
Hyphal fragments[36]	Mycobacteria[44]	Microbial VOCs[46–49]
Conidia[36]	Protozoa[43]	Building material VOCs[46]
Beta Glucans[35,37]	Chlamydia[45]	Coarse particulates[13]
Mannans[13,38]	Mycoplasma[45]	Fine particulates[13]
Spirocyclic drimanes[35]	Endotoxins[37,38]	Ultrafine particulates[57,58]
Inorganic xenobiotics[39]	Lipopolysaccharides[40]	Nano-sized particulates[57,58]

B)

(1) There are 30 different toxins, inflammagens and microbes that are identified that can trigger your innate immune system.

(i) Mold only is a part of about four or five of those.

(ii) So to just look at a HERTSMI and say, "Well, it's okay for sure," it's not for everybody.

C) The problem is the water-damaged building. ERMI and HERTSMI at the core, they're looking to really tell you, "Is this building water-damaged or not?"

XVI) 1:13:44 – Mold Illness Made Simple

XVII) 1:21:45 – Long term CIRS and neurological and developmental trauma

A) Can long-term untreated CIRS in mold-affected children become a neurologic and/or developmental trauma in addition to CIRS?

(1) Absolutely. They're all connected together.

B) The trauma of this illness is actually very under-recognized.

C) The trauma of having to move or to have to leave your house for a certain period of time while it's being remediated is big.

D) Many people have that family split or have family problems as a result of this illness.

E) Child who's slightly on the autistic spectrum or maybe already has difficulty making friends, then all of a sudden having to change school or have this illness on top of what they already had can also, it can be a little bit of a setback.

F) Some people don't believe

XVIII) 1:24:00 – NeuroQuant and Lyme diagnosis

A) If I get a NeuroQuant that suggests Lyme, I certainly will do more invasive testing in a patient if they haven't previously had that diagnosis.

XIX) 1:24:45 – NeuroQuant to monitor treatment

A) As MSH drops, as MMP-9 increases, as TGF-b1 increases, as VEGF drops, tight junctions become a looser junctions and stuff can start squirting into the brain out of the blood vessels.

(1) Those are things like toxins and products of inflammation, cytokines into the brain and setting up inflammation in the brain.

(2) So that is a lot of what the CIRS illness is.

(3) It affects your cognitive ability.

(4) It affects your caudate nucleus, which is involved in attention and your mood, your ability to recognize languages, your motor planning and other things. It's involved in all of those things.

B) Half of your brain typically on a NeuroQuant will be inflamed – swollen up – *half* of your brain.

(1) The forebrain parenchyma, the white matter here and the cortical grey that covers over it make up half of your brain.

(2) We see that in adults, we see that in kids.

C) As you follow the steps of Dr. Shoemaker's protocol that the areas of your brain that are swelling up come back to normal, come back to control levels.

(1) What the most recent study shows is that as you use VIP that grey matter nuclei like the caudate nucleus start to build up again where before they were small or atrophic, they start to get bigger and stronger.

(2) So pruning that was happening before perhaps with elevated levels of C4a and what not, pruning is being reversed.

(i) The opposite or pruning is learning.

(ii) So the brain is improving and coming back to normal and that's exciting.

D) In children the majority of children will only need the first two steps, without VIP

XX) 1:29:25 – How long do you use VIP?

A) At this point, it's an unanswered question.

(1) Generally speaking we haven't taken any children off of VIP because they're doing so well.

(2) The ones who have stopped it because of resources or travel or whatever, we have seen almost immediate declines when they came off

(3) VIP is a chemical that your body makes.

(i) It does a number of things. It helps

(a) Run your 24-hour clock, your circadian rhythm.

(b) It helps the neurons fire properly so that your brain functions properly.

(c) It helps the secondary messenger cyclic AMP in almost every cell of your body.

(d) It's a major inhibitor of the immune system.

B) That's the problem in CIRS is that your immune system has gone wild.

(1) The silent fire that you've talked about is raging inside

(2) VIP is a major inhibitor of that

(3) Almost everybody is low in the amount that they're making in their body.

XXI) 1:31:15 – Raising MSH

A) VIP nasal spray is raising people's MSH

XXII) 1:33:50 – Growth issues and developmental delay / Autism reversed

A) The pituitary makes nine different hormones.

(1) We only test six of them and we see abnormalities in the systems involved in all six of those.

(2) Growth hormone is one of those nine that we don't test.

B) Cognition; hurricane Sandy hit, the apartment her family was living in got water-damaged. Six months later, she was diagnosed with autism.

(1) Had been perfectly normal, maybe mild speech delay before that, and now all of a sudden, she's autistic. I found them or the mom found me.

(2) In two months, she saw the neuropsychologist again and said, "This isn't autism."

(3) It was completely reversed what they had called autism.

C) We clearly can see developmental delays and we can see them reversed

XXIII) 1:36:12 – Closing