



MOLDS, MYCOTOXINS & THE ENVIRONMENT

Mark Su, MD, FAAFP



MARK SU, MD, FAAFP

Employed 2003-2014;
Own practice since 2014

Lover of learning

Constantly networking

Described as: analytical,
trustworthy, others-serving

**“Medicine is both an art
and a science”**



THE BETTER PART OF ME:



And smarter!

Jessica



Christian



Lily



Nathan ("Naty")

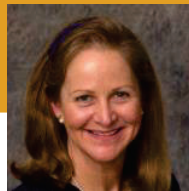


William ("Bubs")



Gratitude

Peg DiTulio, APRN

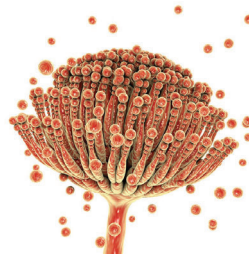


Ritchie Shoemaker certified practitioner
Past Treasurer for ISEAI
Practices in southern NH

MOLDS, MYCOTOXINS, & MORE

What are we talking about?

- Mycotoxins: secondary metabolites produced by fungi that can cause pathology/disease
- Exposure sources: inhalation, ingestion & skin contact
- Manifestations: allergic/inflammatory & toxic
- Factors in degree of influence:
 - Exposure duration and intensity
 - Type of mycotoxin
 - Age and genetics
 - Health and nutritional status
 - Additional toxic burden ("Exposome profile")



THE PERSONALIZED HEALTH MAP

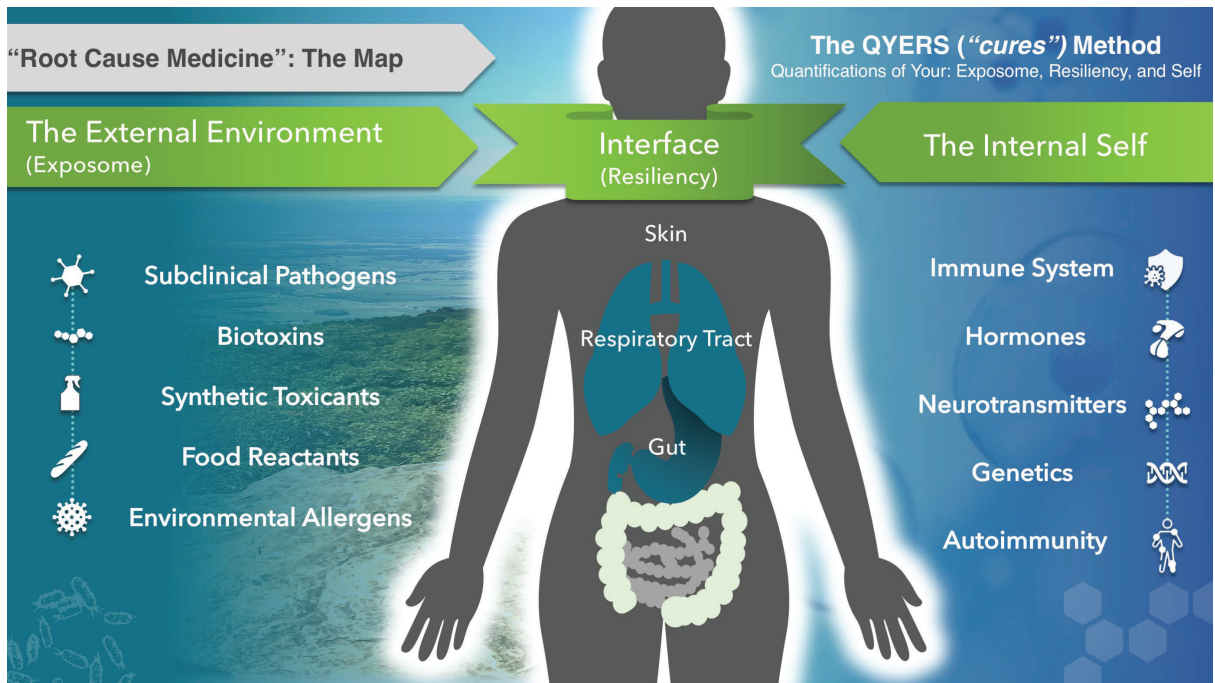


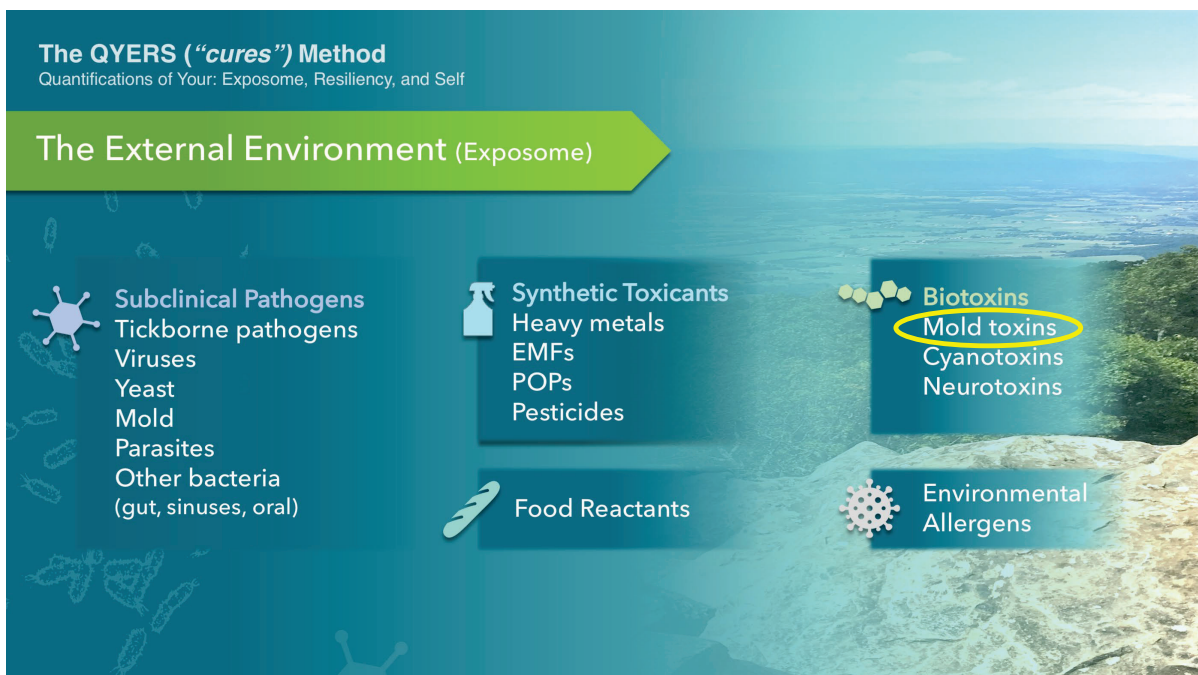
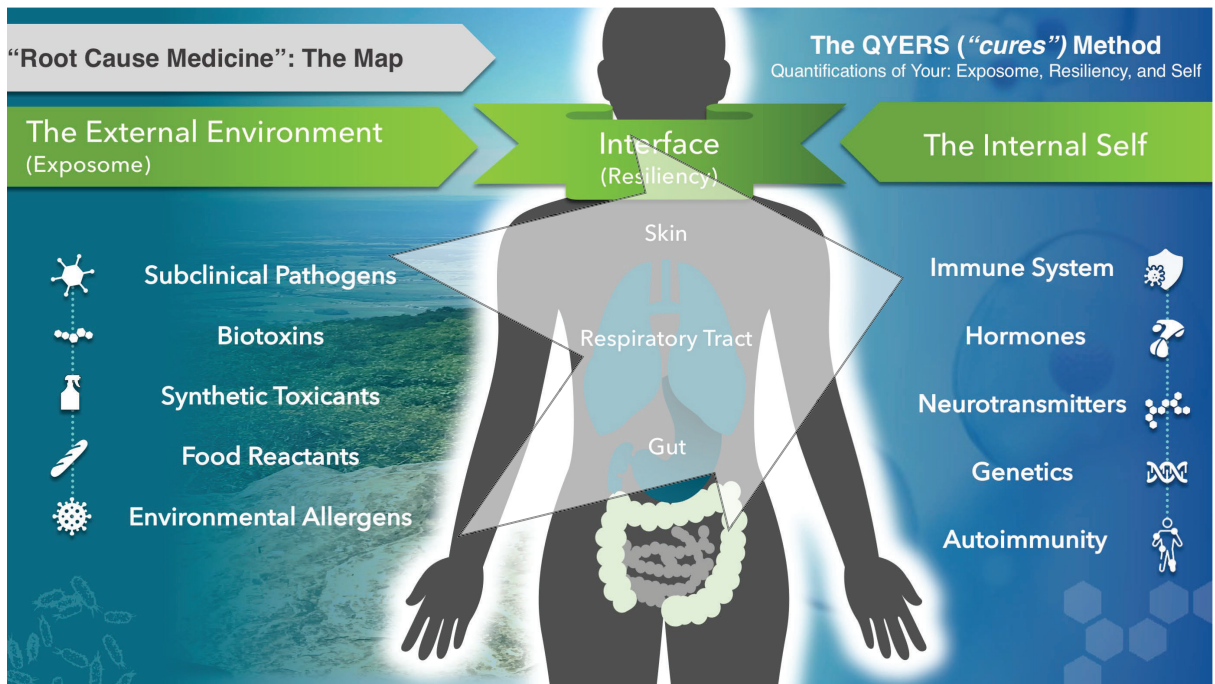
"A 3-part model"

THE PERSONALIZED HEALTH MAP



"A 3-part model"





The Internal Self

The QYERS (“cures”) Method
Quantifications of Your: Exposome, Resiliency, and Self

 Immune System

 Hormones

 Mitochondria

 Micronutrients

 Neurotransmitters

 Blood-brain barrier

 Genetics

 Autoimmunity

Interface (Resiliency)

The QYERS (“cures”) Method
Quantifications of Your: Exposome, Resiliency, and Self

- ▶ Gut
- ▶ Respiratory Tract
- ▶ Skin

MOLDS, MYCOTOXINS, & MORE

What are we talking about?

- Mycotoxins: secondary metabolites produced by fungi that can cause pathology/disease (Exposome: biotoxin)
 - Exposure sources: inhalation, ingestion, and skin contact
 - Manifestations: allergic/inflammatory & toxic Interfaces
 - Factors in degree of influence:
 - Exposure duration and intensity
 - Type of mycotoxin
 - Age and genetics
 - Health and nutritional status
 - Additional toxic burden ("Exposome profile") Self
- Exposome: rest of the "bug and toxin" profile?

MOLDS, MYCOTOXINS, & MORE

Not all molds produce mycotoxins, but some do:

- Aspergillus (ochratoxin, aflatoxin, sterigmatocystin, citrinin)
- Penicillium (gliotoxin, citrinin)
- Chaetomium (chaetoglobosin, cochliodinol)
- Fusarium (Verrucarin A, Enniantin B, some tricothecenes, zearalenone, others)
- Stachybotris (satratoxin, roriden E, trichoverrins)
- Wallemia (walleminol)
- Claviceps (ergot alkaloid)

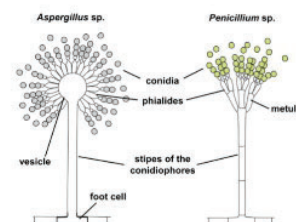


Figure 1: Conidiophore of Aspergillus and Penicillium

MOLDS, MYCOTOXINS, & MORE

What symptoms can patients present with?

- Fatigue
- Weakness
- Diffuse Unexplained Pain
- Headache
- Shortness of Breath
- Dyspnea on Exertion
- Palpitations
- Cough
- Chest Pain
- Abdominal Pain
- Nausea
- Diarrhea
- Constipation
- Rash
- Light Sensitivity
- Sound Sensitivity
- Tinnitus
- Flushing/Sweats
- Chills
- Neck/Back Pain
- Cognitive Impairment
- Confusion
- Anxiety
- Depression
- Insomnia
- Dizziness
- Static Shocks
- Urinary Frequency
- Numbness/Tingling
- Metallic Taste
- "Push Crash" Phenomena
- Tremor
- Visual Disturbance
- Hair Loss
- Menstrual Irregularity
- Joint Pain
- Muscle Pain
- Muscle Spasm

- Anything and everything
- "Root cause" medicine
- ~MSIDS: more symptoms - more likely



MOLDS, MYCOTOXINS, & MORE

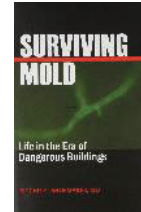
- Who are the (most) suspected patients in question?
 - MSIDS-type patients / "ChronPlex" patients
 - ME/CFS patients
 - ReCODE/memory loss patients
 - Fibromyalgia patients
 - Autoimmune patients
 - Tickborne illness patients
 - "Toxic" patients
 - Others...



MOLDS, MYCOTOXINS, & MORE

History: In the beginning... CIRS (Chronic Inflammatory Response Syndrome)

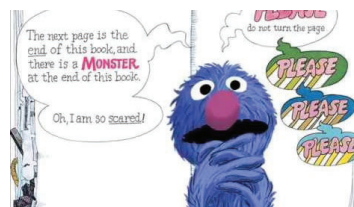
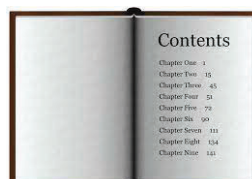
- Definition:
 - Strictly an inflammatory response
 - Source: WDB – environmental mycotoxins and more
- Credit/Founder:
 - Ritchie Shoemaker, MD – www.SurvivingMold.com
 - Several books; many publications
 - www.MoldCongress.com
- Content:
 - Very tight protocol
 - Important basis for many current practices, thoughts



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How do I diagnose and treat CIRS? (what I say to patients)

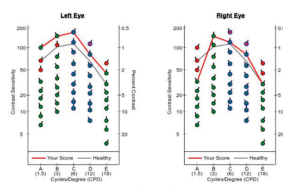
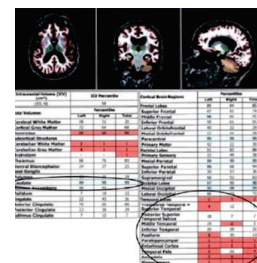
- 2 Chapters to the book – simple enough
 - Chapter 1: diagnosis
 - Chapter 2: treatment
 - **BUT**, turning the page is the hardest part – “It’s a hard, hard page to turn.”



MOLDS, MYCOTOXINS, & MORE

CIRS: diagnosis

- Serum labs
 - Protocol: many labs
 - Many clinicians: some subset of the protocol panel
- NeuroQuant imaging
 - Not always readily available
- Visual Contrast Study
 - www.VCStest.com
- (non-CIRS: urinary mycotoxins & antibodies)



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CIRS: diagnosis

- Serum labs - subsets
 - HLA-DR
 - complement C4a, TGF-B1, MMP-9
 - VEGF, VIP, MSH, ADH/copeptin
- Urinary mycotoxins & serum antibodies (non-CIRS)
 - Great Plains Lab: LC/MS (urine: 11 markers)
 - Real Time Lab: Elisa (urine: 15 markers)
 - Vibrant America Lab: MS (urine: 31 markers)
 - MyMycoLabs: IgE and IgG antibody testing (serum: 12 markers each)



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CIRS: treatment

- Detoxification
 - "Mold (toxin) binders", Rx's: cholestyramine, colestevlam.... challenges
 - "Mold (toxin) binders", non-Rx: charcoal, bentonite clay, glutathione, fulvic/humic acid, many other touted options
- MARCoNS
 - Multiple Antibiotic Resistant Coagulase Negative Staphylococci
 - MicrobiologyDx – Joe Musto, PhD
 - Treatments: nasal sprays – BEG spray >> silver + EDTA... or EDTA alone... or XClear (OTC)
- Hormone (etc) rebalancing
 - MSH, anti-gliadin Ab's, testosterone, ADH, MMP-9, VEGF, C3a, C4a, TGF B1, VIP



MOLDS, MYCOTOXINS, & MORE

Physiology Before Pharmacology

- Why do clinical symptoms vary within the same family?
- What options do we have besides "mold (toxin) binders"?
 - Identify and reduce other sources of chronic inflammation
 - via the exposome – eg, delayed allergy testing
 - via the immune system – eg, cellular alkalization
- What about the oral ingestion of molds?

MOLDS, MYCOTOXINS, & MORE

Environmental Testing – “swipe test kits”

- Mycometrics
 - www.Mycometrics.com
- Envirobiomics
 - www.Envirobiomics.com

We use a point system. Units are Spore E/mg.

10 points are assigned for	
Aspergillus penicillioides	>500
Aspergillus versicolor	>500
Chaetomium globosum	>125
Stachybotrys chartarum	>125
Walleria sebi	>2500
5 points are assigned for	
Aspergillus penicillioides	100-499
Aspergillus versicolor	100-499
Chaetomium globosum	25-124
Stachybotrys chartarum	25-124
Walleria sebi	500-2499
4 points are assigned for	
Aspergillus penicillioides	10-99
Aspergillus versicolor	10-99
Chaetomium globosum	5-24
Stachybotrys chartarum	5-24
Walleria sebi	100-499

Interpretation of HERTSM-2 Scores

<11	Statistically safe for re-entry for those with CIR5
11-15	Borderline; clean first and re-test before re-entry
>15	Dangerous for those with CIR5. Do not enter.

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Location	88 Saunders St.
	Spore E./mg
	HV242-Variou Areas
Fungal ID \ Sample ID	
Aspergillus penicillioides	120
Aspergillus versicolor	6
Chaetomium globosum	2
Stachybotrys chartarum	<1
Walleria sebi	69



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IEP's: Indoor Environmental Professionals

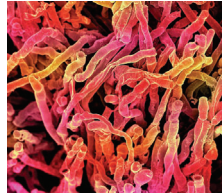
- An essential resource for patients' recovery programs and prognosis...
- Developing a practitioner-IEP relationship, or practitioner-IEP-patient group dynamic



MOLDS, MYCOTOXINS, & MORE

Newer developments - advancements

- GENIE testing
- Actinomycetes
- Semantics
 - "Mold" illness
 - CIRS
 - Mycotoxins
 - CIMI?



MOLDS, MYCOTOXINS, & MORE

Resources

- www.ISEAI.org
- www.SurvivingMold.com

- Gotta jump in and start somewhere.
- It is prevalent: >50% of buildings in the U.S. are water-damaged (National Institute for Occupational Safety and Health)
- CIRS teaching and clinical observations: "mold first" (among "bugs and toxins")



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Summary

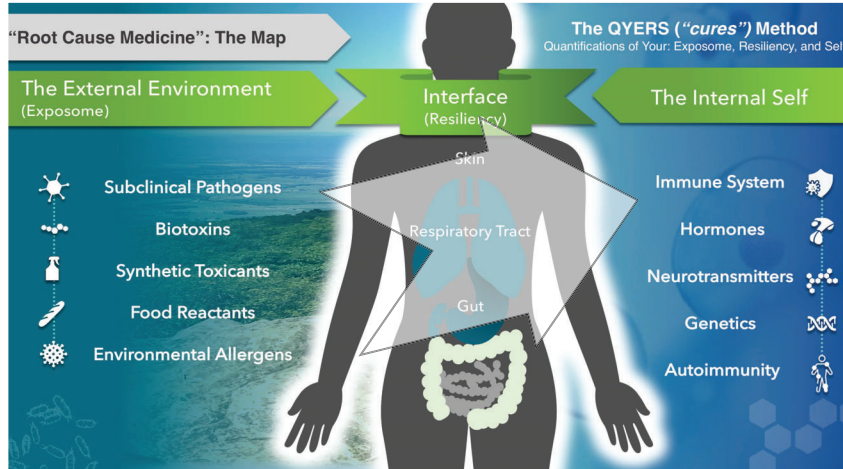
- Problem: mycotoxins deriving from WDB's
- Treat the person:
 - Immune system optimization
 - Mold toxin "binders" (detoxification)
- Treat the building:
 - A knowledgeable IEP is typically necessary
 - Proper home swipe testing is also a great place to start
 - Execute remediation where necessary

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If needed:

- 2nd opinion with home inspection may be necessary
- Chronic illness is rarely due to one cause/exposome factor
 - Evaluate for other causes – revisit the "map"

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Immune system is the key

"THIS IS A TRANSITION SLIDE"



VIRTUAL PRACTICE PEARLS

Basics

- Purpose – why?
 - Goals: for your patients? For yourself?
 - Any additional value? Niche?
 - New vs. transitioning vs. hybrid?
- “Target Audience”
- Regulations – dynamic
- Liabilities
- Limitations



VIRTUAL PRACTICE PEARLS

Limitations: overcoming virtual barriers

- Age/generational differentiations differences
- Can't replace some of the non-verbal communication, even by video - reassurance
- Technology “glitches”, frustrations – unpredictable
- Empathic traits?



VIRTUAL PRACTICE PEARLS

Technology considerations

- Phone, video
- Zoom, FaceTime, Skype, Doxy, EMR-based
- Signing consent forms... test kits... supplements... visual aids



VIRTUAL PRACTICE PEARLS

Differences in patient outreach

- Networking/local referrals – largely absent
- “Marketing” approaches – online options? Familiarity?
- How to overcome initial hesitation by patient, not being able to “get a feel” for you, your practice?
- Website: dynamically and quickly changing – mindset, presentation to more effectively solicit responses



VIRTUAL PRACTICE PEARLS

Considerations – based on budget, goals/needs

- Independent effort - keep doing things the older ways?
- Marketing assistant – commonly social media focus
- Consulting business – in evolution, but updated



VIRTUAL PRACTICE PEARLS

FMCG

- Purpose (origins):
- Mission (goals):
- Target audience:
- Regulations and liabilities: (legal)
- Technology: Cerbo EMR, Fullscript, drop ship kits

VIRTUAL PRACTICE PEARLS

FMCG

- Outreach: website... social media... automation
- Commitment: transitioned from "self" to "others" – exec director, then consulting business
- Challenges:
 - Lack of familiarity with local resources for patients (lab draws, eg)
 - More reliance on patients' ability to troubleshoot
 - Progress vs. Perfection



IN CLOSING

Keep up your hard work!
Kudos to each of you!!



I'm an introvert, but I love to network – don't be a stranger 🕶️

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Thanks to Dr. Russell Jaffe
and the PIH team!

