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Mold in My Library

A Personal Journey Through the Health Impacts of Toxic Mold Illness

Many academic libraries are susceptible to toxic mold, leaving a large number of library workers vulnerable to illness. Because the science and study of environmental illness is emerging, many barriers exist in addressing indoor air quality issues. As librarians we are often taught in library school and through professional resources to fear mold in our collections, but not about the impact it can have on our health. Certain academic libraries are susceptible to becoming sick buildings because of when and how they were constructed, as well as higher education practices of deferred HVAC maintenance. Adding water intrusion events and high humidity imbalance only increases the risk of producing poor health effects in these environments. Unfortunately, the health impact caused by mold mycotoxins circulating in the air can remain in libraries long after visible mold cleanup occurs.

I was diagnosed with biotoxin illness after working for multiple years in an academic library with repeated outbreaks of toxic mold. As a disclaimer, I am not a medical doctor. I'm a librarian, educator, and patient. Professionally, I am an academic library director of nearly 20 years (across multiple institutions) and an adjunct library and information science instructor. Much of what I've learned is from first-hand experiences with doctors, indoor air quality technicians, and my own literature review. When I became ill, I suffered for years trying to find help medically, organizationally, and professionally. My hope is that in sharing my story, I can provide some roadmap pieces for current and future library workers who find themselves in similar situations.

Background

Although little library literature exists on the role that ongoing mold exposure has on library staff and patrons, it does document evidence of mold outbreaks in libraries forcing closures dating back to the 1990s[1] to current day[2] and occurring all throughout the United States.[3,4,5,6,7] However, in my case and in countless cases I've heard about from other academic librarians, mold is quickly cleaned up, environments are deemed safe, and operations move on. After all, to do otherwise results in large financial expenditures (sometimes in the millions), which institutions may not have.

For clarification, molds are naturally occurring fungal growth found in distinct environments like air, soil, plants, animals, and human hosts.[8] They reproduce by releasing tiny spores that float through the air and indoors are linked to water or moisture problems.[9] Some of

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these molds are known to produce mycotoxins. Mold mycotoxins are "diverse toxic secondary metabolites that are naturally produced by a wide range of molds."[10] Mycotoxins are not visible to the naked eye, and in water damaged buildings these toxins are often inhaled.[11] At this point it is important to distinguish that mold exposure can cause human allergies, but ongoing exposure to mold mycotoxins, unlike allergies, can have poisonous effects in the body. Consequently, for a significant number of people, biotoxin illness owing to ongoing mold exposure results in systemic and chronic bodily inflammation and a cascade of negative human health impacts. One doesn't acquire biotoxin illness with short-term exposure; it develops over time.

Unhealthy Buildings and Mold Outbreaks

When I spotted the first significant mold outbreak in our collection on some library archival materials, I knew it was bad. After all, I had been introduced to the dangers of mold to collections in library school. I also knew from a health standpoint that the situation was not good for people such as myself with mold allergies. I completed years of allergy shots for molds and other allergens before and during my employment at this library. However, I had no idea that the mold outbreak I came upon or the subsequent ones to come could actually prove toxic to myself and others in my building.

There are several well-known causes that contribute to mold in indoor buildings: moisture intrusion;[12,13] ventilation system issues,[14] and high humidity levels.[15] Libraries are particularly susceptible to having long-term toxic mold from an outbreak because of the porous nature of the materials we house. Although *Stachybotrys* or "black mold" is the most well-known toxic mold, *Penicillium/Aspergillus* is a particular toxic mold found in the degradation of paper materials and is therefore common in libraries.[16] In the first air quality test conducted in the library, indoor levels of *Penicillium/Aspergillus* were 28 times higher in the affected area versus outside levels. I later found mycotoxins from this mold in my body during medical testing.

Academic libraries built around the 1970s that incur repeated water damage can have construction factors that lead to sick buildings if they are not well maintained. Construction of public buildings during this time promoted energy efficiency; included mechanical heating, ventilation, and air-conditioning (HVAC) systems; and in many cases used less expensive building materials.[17] These types of tightly sealed buildings can allow environmental toxins to recirculate through the building. The library I worked in fit this category.

In my case, moisture intrusion into the building came from roof leaks, a poor building envelope with cracking exterior brick and interior concrete, and basement flooding on and off over many years. There were also multiple ventilation issues: air conditioning that was turned off when the building was closed, one summer with 10 days of no air conditioning to replace a boiler system, extensive deferred HVAC maintenance, and operating a system for more than 20 years past its expected life cycle. Despite multiple air quality reports, complaints from staff of adverse health effects while working in the building, and meetings with environmental specialists, few updates were made, and those that were completed did not address any of the underlying causes of the repeated outbreaks.

Links to Biotoxin Illness from Mold Exposure

One factor among many that allows for a building like this library to stay in operation is that all employees do not feel the effects equally. It is estimated that 25% of the population

carries a genetic mutation that is identified with being unable to properly rid their bodies of mold toxins and makes them particularly vulnerable to illness when exposed to these toxins over time.[18,19] The process is explained as:

> In most people, the biotoxin is "tagged" and identified by the body's immune system and is broken down and removed from the blood by the liver. However, some individuals do not have the immune response genes (HLA-DR genes) that are required to eventually form an antibody to a given foreign antigen. In these cases the biotoxins are not "tagged" and remain in the body indefinitely, free to circulate and wreak havoc.[20]

Lab tests confirmed I carry this genetic marker. Some of the adverse health effects of biotoxin illness are severe brain fog, vertigo, headaches, asthma, gastrointestinal issues, resistant staph bacteria, chronic pain, and exhaustion, among many others. As a result of this situation, it is very difficult to recover from biotoxin illness from mold exposure without permanently removing oneself from the environment.[21,22]

Treating Biotoxin Illness

Treatments will hopefully vastly improve in the coming years with more awareness of environmental illnesses. However, there are steps patients can take to rid their bodies of toxins and boost their immune systems. Most importantly, patients will need a specialist as a partner in treatment. These physicians typically practice functional or integrative medicine. Short-term treatments typically involve "binders" to aid in the ridding of toxins from the body. Then patients can begin addressing any other illnesses or disorders that remain from the systemic inflammation and overactive immune response.

Lack of Employee Assistance

Unfortunately, having found myself in this environment, there were not many employee supports to help improve my situation. Currently, it is difficult to hold employers responsible for sick buildings. There are no standards for acceptable mold amounts indoors,[23] and there are no commonly agreed-upon environmental testing measures.[24] These factors mean you can ask your employer to test for mold, but there is not much to be done with the results. Further, the type of test (air or surface) can affect the results. When mold is found, reports typically just compare indoor to outdoor amounts and include notes like "could cause allergies for some" or "not deemed toxic for humans with normal immune systems." Systems we think might help employees (like OSHA or worker's compensation laws) are slow at effecting change and can still slant toward employers.

It can also be difficult to find or afford medical treatment for this illness. I saw quite a few doctors who did not believe mold could cause toxic symptoms, such as the ones I experienced. Rather, I came to learn that environmental illnesses are not well covered in many medical school programs. "Limited educational opportunities currently exist for medical students and residents to learn about the diagnosis and management of exposure-related conditions."[25] When I finally found a physician who specialized in this area, she confirmed this situation while noting that it is improving. Further, most insurance companies do not cover the full cost for treatment of biotoxin illness. As a multi-system illness, a short doctor's

visit is not long enough to treat patients, nor are simple medical tests to diagnose problems, thus requiring more out-of-pocket expenses for patients.

Being Your Own Advocate

There are a variety of things I learned to do to protect myself in the process of reporting these issues to my employer. By way of my position as a library director, I had a lot of access to information about the building, and data collection was essential. I learned that if I wanted to advocate for myself and my staff, I could not just simply voice my concerns to senior administrators. Early on, doing so meant deploying housekeeping to wipe up mold from surfaces and conducting air quality testing while I was out of the building. Consequently, I took pictures of all future mold outbreaks before reporting them and asked that I be allowed to be present for all air sampling and environmental inspections. I also requested, and was given, copies of most of the mold testing and environmental reports done for the building. I recommend that any employee aware of a mold outbreak in their building request air quality testing and a report of such testing. If an employer refuses, there are low-cost mold test kits you can purchase online to conduct your own testing. While being diligent does not mean your employer can or will fix a major mold problem adequately, it can provide you valuable information for healing and hopefully help you to satisfactorily exit the situation. It is important to realize that you can be an exemplary employee and still be seen as an adversary to the well-being of the institution.

Getting Out and Getting Better

In consultation with my family and my physician, I decided to leave a job I loved for my health and my quality of life. I'd like to say that my employer was supportive, but they took a path of risk avoidance and denial instead. Unfortunately, library employees are particularly susceptible to employers being able to refuse reasonable accommodations for alternative workspaces under the Americans With Disabilities Act because of the frontline nature of our work. Moreover, it is incredibly hard to navigate this situation when you are feeling the full effects of the illness. A caring and knowledgeable physician is vital in this process. Ultimately, I chose to take a leave of absence under the Family and Medical Leave Act to begin recovery and protect my job during the process. It gave me the space I needed to create an exit plan from my position and that of working in a toxic library building.

Conclusion

The cost to human livelihood and the cost to remediate sick library buildings should be factors that are strongly considered during initial construction and in ongoing prevention of conditions that lead to potential outbreaks of mold in these workspaces. Water-damaged libraries and collections are often obviously so. Before accepting a new academic library position, one may wish to take stock of the building environment before doing so. In the absence of these steps, employees may need to create their own pathway out of sick library buildings for their own livelihoods. Knowing how to find employee advocates, healthcare partners, and educational resources is critical.

Wellness from biotoxin illness is possible, but it takes time and patient resolve to stick with treatments. Unfortunately, it also currently means a strict avoidance of buildings with ongoing, uncontrolled water damage issues. We are early in understanding this illness and

in scientific research on it. Hopefully the coming years will bring new, more affordable treatments and new regulations for indoor air quality and employee safety in workplaces.

Notes

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