

“Toxic Mold”

News coverage of the dire consequences of mold infestation and multimillion legal/insurance settlements have raised concern and interest among patients about the health effects of fungi. So called “black mold” (*Stachybotrys chartarum*) has been described as being particularly harmful despite the fact that an initial CDC study finding an association between *stachybotrys* and death from pulmonary hemorrhage in infants was subsequently retracted by the CDC.¹⁻⁴ A well balanced statement from the American College of Occupational and Environmental Medicine titled “Adverse Human Health Effects Associated with Mold in the Indoor Environment” can be found at their website: www.acoem.org/guidelines/evidence.

The summary of that statement is printed below:

“Molds are common and important allergens. About 5% of individuals are predicted to have some allergic airway symptoms from molds over their lifetime. However, it should be remembered that molds are not dominant allergens and that the outdoor molds, rather than indoor ones, are the most important. For almost all allergic individuals, the reactions will be limited to rhinitis or asthma; sinusitis may occur secondarily due to obstruction. Rarely do sensitized individuals develop uncommon conditions such as allergic bronchopulmonary aspergillosis (ABPA) or

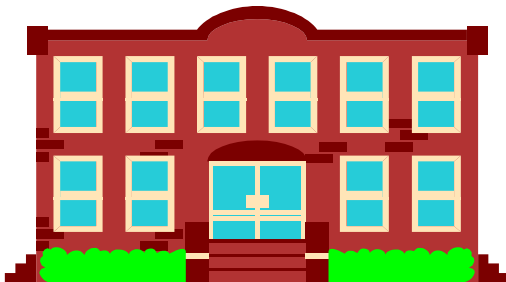
allergic fungal sinusitis (AFS). To reduce the risk of developing or exacerbating allergies, mold should not be allowed to grow unchecked indoors. When mold colonization is discovered in the home, school, or office, it should be remediated after the source of the moisture that supports its growth is identified and eliminated. Authoritative guidelines for mold remediation are available.

*Fungi are rarely significant pathogens for humans. Superficial fungal infections of the skin and nails are relatively common in normal individuals, but those infections are readily treated and generally resolve without complication. Fungal infections of deeper tissues are rare and in general are limited to persons with severely impaired immune systems. The leading pathogenic fungi for persons with nonimpaired immune function, *Blastomyces*, *Coccidioides*, *Cryptococcus*, and *Histoplasma*, may find their way indoors with outdoor air, but normally do not grow or propagate indoors. Due to the ubiquity of fungi in the environment, it is not possible to prevent immune-compromised individuals from being exposed to molds and fungi outside the confines of hospital isolation units.*

Some molds that propagate indoors may, under some conditions, produce mycotoxins that can adversely affect living cells and organisms by a variety of mechanisms. Adverse effects of molds and mycotoxins have been recognized for

centuries following ingestion of contaminated foods. Occupational diseases are also recognized in association with inhalation exposure to fungi, bacteria, and other organic matter, usually in industrial or agricultural settings. Molds growing indoors are believed by some to cause building-related symptoms. Despite a voluminous literature on the subject, the causal association remains weak and unproven, particularly with respect to causation by mycotoxins. One mold in particular, *Stachybotrys chartarum*, is blamed for a diverse array of maladies when it is found indoors. Despite its well-known ability to produce mycotoxins under appropriate growth conditions, years of intensive study have failed to establish exposure to *S. chartarum* in home, school, or office environments as a cause of adverse human health effects. Levels of exposure in the indoor environment, dose-response data in animals, and dose-rate considerations suggest that delivery by the inhalation route of a toxic dose of mycotoxins in the indoor environment is highly unlikely at best, even for the hypothetically most vulnerable subpopulations.

Mold spores are present in all indoor environments and cannot be eliminated from them. Normal building materials and furnishings provide ample nutrition for many species of molds, but they can grow and amplify indoors only when there is an adequate supply of moisture. Where mold grows indoors there is an inappropriate source of water that must be corrected before remediation of the mold colonization can succeed. Mold growth in the home, school, or office environment should not be tolerated because mold physically destroys the building materials on which it grows, mold growth is unsightly and may produce offensive odors, and mold is likely to sensitize and



produce allergic responses in allergic individuals. Except for persons with severely impaired immune systems, indoor mold is not a source of fungal infections.



Current scientific evidence does not support the proposition that human health has been adversely affected by inhaled mycotoxins in home, school, or office environments.”

The most frequent conditions reported in Michigan from exposure to mold are the IgE mediated conditions; allergic rhinitis and asthma. Less frequently the IgG mediated condition hypersensitivity pneumonitis has been recognized either among farmers or in outbreaks in the early 90's among workers machining metals with metal working fluids (coolants).

When evaluating a patient concerned about mold exposure one needs to evaluate the patient for allergic rhinitis, allergic conjunctivitis, asthma and hypersensitivity pneumonitis. Testing should be limited to standard diagnostic tests such as pulmonary function and radiographic studies. Skin testing for fungus or measurement of IgE antibodies such as those in the Midwest Allergy Panel and/or IgG antibodies in the Hypersensitivity Pneumonitis Panel are helpful in documenting exposure when the results are positive. Results of the blood tests are not useful when negative, given the low sensitivity of these tests or the absence of the responsible antigen for a particular patient in the standard commercial lab panels.

In addition to management with the standard battery of allergy and asthma medications, evaluation of the building/workplace for water damage and visible mold growth can be useful. Sources of water leakage need to be corrected and water damaged material such as carpeting, wallboard and visible mold removed. Air

sampling for mold is rarely useful. Evaluation of the adequacy of ventilation (cubic feet/minute of supplied air and percentage of fresh air versus recirculated air) and correction of the ventilation problems that are identified is the most effective way to correct problems. Use of disinfectants to attempt to eliminate mold can increase symptoms by introducing a chemical irritant into the indoor air environment. Labor/management disagreements in the workplace can magnify the health concerns.

We remain interested in received reports of work-related health problems you suspect to be caused or aggravated by mold. See the box on the last page for ways to report a suspected patient. If you have diagnostic or management questions concerning patients potentially exposed to mold, please feel free to call Kenneth Rosenman, MD at our toll free number 1-800-446-7805.



**THE 73RD ANNUAL
MICHIGAN SAFETY
CONFERENCE
WILL BE HELD AT THE
LANSING CONVENTION CENTER
ON TUESDAY AND WEDNESDAY,
APRIL 15TH AND 16TH**

**One of the highlights of the
120 educational sessions will
be a session featuring the
new director of the
National Institute for
Occupational Safety and Health,
John Howard, MD, MPH, JD, LLM
at 12:30 PM on April 16th.**

**For more information:
www.mscregistration.com**

References

1. Centers for Disease Control and Prevention (CDC). Acute pulmonary hemorrhage/hemosiderosis among infants – Cleveland, January 1993–November 1994. *MMWR Morb Mortal Wkly Rep.* 1994;43:881-83.
2. Centers for Disease Control and Prevention (CDC). Update: pulmonary hemorrhage/hemosiderosis among infants – Cleveland, Ohio, 1993-1996. *MMWR Morb Mortal Wkly Rep.* 1997;46:33-5.
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4. Centers for Disease Control and Prevention (CDC). Update: pulmonary hemorrhage/hemosiderosis among infants – Cleveland, Ohio, 1993-1996. *MMWR Morb Mortal Wkly Rep.* 2000;49:180-84.

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In this issue:
"Toxic Mold"

***P**
S Remember to report all cases of occupational disease!

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the Reporting of
Known or Suspected
Occupational Diseases**
Reporting can be done by:
FAX (517) 432-3606
Telephone 1-800-446-7805
E-Mail ODRREPORT@ht.msu.edu
Web www.chm.msu.edu/oem
Mail Michigan Department of
Consumer and Industry Services
Occupational Health Division
P.O. Box 30649
Lansing, MI 48909-8149
Reporting forms can be obtained by
calling (517) 322-1608
Or
1-800-446-7805

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