

ESSENTIAL STEPS IN MANAGING SCHOOL INDOOR AIR CRISES

Ronald E. Gots, M.D., Ph.D.

Suellen W. Pirages, Ph.D.

Barbara A. Gots, M.D.

Mark Nealley, M.S., CIH

International Center for Toxicology and Medicine (ICTM)

2301 Research Blvd, Suite 210

Rockville, MD 20850

301-519-0300

301-519-1307 (fax)

regots@ictm.com

Mold, the organisms that give us bread, beer and the welcome smell of a return to summer camp, has become the latest health scare and billion dollar business. No longer will a swipe with Tilex do. *USA Today*, the Discovery Channel, and *48 Hours* have profiled abandoned homes and touted illnesses from bleeding lungs to brain damage from mold-contaminated homes. Worries about Atoxic molds@ have led homeowners in Oregon and Texas to burn down their homes with TV cameras rolling. Even Erin Brochovich has embraced the mold panic. She and thousands of others have fled their mold-infested homes and abandoned their Acontaminated@ life=s possessions. Schools are closing because of mold. City budgets are straining. Insurers are spending unintended fortunes on remediation. Testing companies are working overtime. Do-it-yourself mold test kits are the rage. Lawsuits are flying.

But how much of this is based in medical realities and how much is hype? After all, mold predated human beings on Earth. No recent transformations or mutations have been documented and no one has even suggested that a new strain has reached us from outer space. Our parents and any of us over age thirty are familiar with moldy basements, mildewed (moldy) summer cabins and overnight camps. Parents who are distressed about sending their children to schools which harbor some (almost any amount) of mold, willingly send their children to summer camps where mold levels are routinely thousands of times higher.

Mold and fungi are everywhere: outdoors, in our homes, offices, schools. It cannot be eradicated. It is normal and natural. The highest levels we customarily encounter are in damp areas in the summer, when we garden and when we walk in the woods or go camping. Gardens and woods are veritable mold incubators. Yet no one has called for an end to camping and gardening; but mold behind our walls is, in the popular mind, grounds for immediate evacuation.

To be sure, mold and fungi can, and always have, caused discomfort in some people

and more serious illnesses in a rare few. Primary concerns in school children are allergies; generally upper respiratory (hayfever), occasionally lower respiratory (asthma). For the most part, however, if these effects occur in an indoor environment, they will also occur outdoors where mold levels are most often higher. This is particularly so in certain parts of the country. For example, summer levels of mold spores in St. Louis commonly tip the scales at 50,000 or more.

The distress and popularization about Atoxic@ mold makes little sense. Almost all molds can make toxins, even those commonly viewed as harmless. Therefore, almost all molds are Atoxic.@ The reason that those toxins are not problematic in the customary outdoor or indoor air is because the levels are too low. Only in certain occupational settings with extreme exposures (i.e., farming), or with eating heavily fungal contaminated grain are fungal toxins known to cause illness. Having said this, we must deal with current concerns and popular perceptions, but we can do so with a minimal waste of valuable resources.

Some of the currently promulgated misinformation or lack of communication about molds and mold toxins include the following:

! Outdoor levels of mold spores can be extremely high: 50,000 or more spores/m³.

! Mold toxins in buildings such as schools have never been proven to cause illness.

! The CDC paper linking *Stachybotrys* to bleeding lungs in newborns has been retracted for lack of scientific validity.

! The CDC formally characterizes *Stachybotrys* as no different from other molds.

! Indoor exposure to mold toxins has never been proven to cause brain damage.

! The term Atoxic mold@ makes no sense since almost all molds can make toxins.

! Molds may or may not make mycotoxins, depending upon growth conditions. Even if they do, levels indoors would be so low as to be likely harmless.

! There are mycotoxins including aflatoxin in food, peanuts and peanut butter, corn and other grains. The FDA has set a permissible amount for those.

! The mold at summer camp is far more extensive than any found in schools.

Having said all this, we must deal with current concerns and popular perceptions, but we can do so with a minimal waste of valuable resources.

In the 100 indoor environmental health investigations we have conducted, none poses more challenges than schools. Here you have to contend, not just with the environment (often, a comparatively minor issue), but with the emotional distress of parents and children, as well as the particularly pressing need to protect our children. This elevates the role of compassionate, knowledgeable communication by a trusted professional to step one in these situations.

A person must understand thoroughly the role of environmental factors (i.e., mold) in children's health. He/she must always be able to explain what is known, calm unjustified fears, propose solutions and listen for suggestions. At the same time he/she must be cognizant of available approaches to health evaluations, environmental assessments and ways to merge the two to arrive at the best judgements about causes of symptoms and practical resolutions. Environmental testing also teeters on a unique edge where schools are concerned.

Over-testing can generate data which have no medical meaning and are, therefore, more harmful than helpful. *Distressed parents don't want numbers, they want answers.* Will this hurt my child? On the other hand, a certain amount of properly-focused testing may be in order. Parents have to be confident that you have done enough and that you can explain the relevance of each and every finding. Again, over-testing may generate data with no known relevance to health and, thus, no satisfactory explanations for parents. In a recent EPA publication, *Mold Remediation in Schools and Commercial Buildings* (March 2001), strong warnings are given about mold testing. Specifically, some of the following comments are made:

Is sampling for mold needed? In most cases, if visible mold growth is present, sampling is unnecessary...Sampling should be done only after developing a sampling plan that includes a confirmable theory regarding suspected mold sources and routes of exposure...

A number of pitfalls may be encountered when inexperienced personnel conduct sampling. They may take an inadequate number of samples, there may be inconsistency in sampling protocols, the samples may become contaminated, outdoor control samples may be omitted, and you may incur costs for unneeded or inappropriate samples.

I might add to this that even experienced personnel may over test and run up sometimes extraordinary, unnecessary costs.

The ultimate key to remediation of the mold is to delineate clearly the source of water incursion and eliminate it. Secondly, materials which cannot be cleaned must be replaced. That generally does not include wood beams or interior contents, unless the latter have become saturated with water and are beyond redemption. Desks can be wiped down with a soap and water solution, or with customarily used cleaning agents. Rarely, except in the most extreme cases, do schools require evacuation during clean up. Rather, rooms can be temporarily evacuated, separated with plastic barriers and remediated, while children remain at the school.

Degrees of distress will vary markedly among individual teachers and parents. In a school with which I recently consulted, a teacher was intensely concerned about mold risks. Reassurance helped, but probably did not eliminate her concerns entirely. At the same school, a child who, from birth, had a severely compromised immune system continued going to the school. When I suggested to the mother that she might take him out for a time, she responded, "We've been trying to give him as normal a life as possible. He is always at risk for infection and we'll take our chances with the school." Since the risk was not greater than most others faced by this child, I concurred with the parents' approach.

Thus, school district personnel confronting these problems need (in this order):

1. Identify carefully water sources and eliminate them.
2. Lay out a careful environmental evaluation plan focused on sensible approaches which includes gathering only interpretable data. **This may, or may not, include any air testing.**
3. Hire excellent, knowledgeable, well-credentialed spokespeople to communicate with teachers and parents.
4. Anticipate questions that will be asked and be prepared with the answers. Honest responses to those questions are critical. ("We don't know," is a statement often more born of ignorance than of honesty.)
5. Work with teachers and parents (i.e., in a small working group) to solicit their input for a working plan.
6. Have a medical professional on the team (or, leading it). Get a detailed medical and environmental history from parents of affected children and affected staff.
7. Report regularly, through the same spokesperson, findings, their relevance (medically) and their solutions.
8. After completion of any remediation, meet again to report and assure parents and teachers that they can call the spokesperson, if new concerns arise.

Such commonsense approaches combined with consistency, rationality and solid medical/scientific and building-related knowledge is indispensable. Any school which does not follow such approaches is potentially headed for trouble. Witness the several year saga at a school in Illinois; or, the numerous superintendents and school board members who have lost jobs over these contentious issues. Even more important is the enormous waste of precious financial resources and the, often unnecessary, fear and dislocation of the students.

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