Describing School Mold and Sick School/Building Syndrome

A host of authoritative sources describe this environmental condition and its related illnesses.
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Describing School Mold and Sick School/Building Syndrome

Guidance for Clinicians on the Recognition and Management of Health Effects Related to Mold Exposure and Moisture Indoors

Nov. 3, 2004

The Univ. of Connecticut and USEPA have just released a document called "Guidance for Clinicians on the Recognition and Management of Health Effects Related to Mold Exposure and Moisture Indoors," published by the Center for Indoor Environments and Health at University of Connecticut Health Center with support from a grant by the U.S. Environmental Protection Agency. P&K Microbiology is a part of the project, a contributor to the document and has repeatedly been mentioned in the document. You can access the document through the weblink below:

http://www.oehc.uchc.edu/clinser/MOLD%20GUIDE.pdf

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Mold In Schools, an Online Powerpoint Presentation by John Santilli, MD

November 16, 2002

http://www.moldallergy.com/presentation/Mold%20in%20Schools_files/frame.htm

This session profiles the impact of mold exposure on the health of students, teachers, and staff in Connecticut public schools, including: current understanding of the impact of mold exposure, current standards for testing indoor air quality for molds, how the air quality was tested for molds in a number of public schools, how the health of teachers and students was assessed and the results.

Minnesota Dept of Health on School Mold

http://www.health.state.mn.us/divs/eh/indoorair/schools/mold.html#when

This "best practices" guidance document was created by the Minnesota Department of Health (MDH) to assist public school staff in investigating the causes of indoor mold concerns and in finding cost-effective solutions.

When is Mold a Concern?

What are the Health Effects of Indoor Mold?

How Should a School Investigate a Mold Concern?

Is Testing Needed to Determine if a School is Safe?

How Can You Tell if the Mold is "Toxic"?

Should the School Be Evacuated When Mold is Found?

How Should a Mold Problem Be Corrected?

MOLD IN SCHOOLS

http://www.edfacilities.org/rl/Mold.cfm

NCEF's annotated list of links, books, and journal articles about identifying, assessing, and removing mold-contaminated materials from school facilities and preventing mold growth.

OSHA Issues Safety and Health Information Bulletin on Mold

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=news_releases&p_id=10489

Sick School Syndrome

http://www.webmd.com/content/article/52/50381.htm

Sick School Syndrome described on WebMD

Is School Making Your Child Sick?

Sick School Syndrome Is Growing By Jennifer Warner

WebMD Medical News Reviewed By Brunilda Nazario, MD

on Wednesday, October 23, 2002

Oct. 23, 2002 -- Ever seem like your child is sick on schooldays, but always raring to go on weekends? For some, it may be more than just a case of not wanting to go to class, it could be a case of sick school syndrome.

Researchers say the problem of schools making students sick is a newly recognized issue, but one that's quickly growing in incidence across the U.S.

"We are witnessing and will continue to see an increasing risk of illness caused by schools with a range of environmental problems," says Michael Shannon, MD, MPH, director of the pediatric environmental health center at Children's Hospital Boston. He presented new research on sick school syndrome this week at the American Academy of Pediatrics National Conference and Exhibition in Boston.

Shannon says the symptoms of sick school syndrome may mimic other illnesses, such as allergies and asthma, and include congestion, red eyes, cough, and wheezing.

"These symptoms may often be very non-specific and are often dismissed by parents, school nurses, pediatricians, and school superintendents," says Shannon.

"Parents should be attentive if their child seems to be complaining of illness that consistently occurs while they are at school," says Shannon. If a noticeable pattern is detected, the parent should contact their pediatrician to have the child examined.

Once other potential health problems have been eliminated, the pediatrician can contact the school to see if there are any potential explanations for the illness, such as recent construction, cleaning, painting, or other changes in the building's environment. The doctor can also ask school officials for a copy of their most recent air quality report or request that an environmental inspection be conducted.

Shannon says the most common environmental offenders that cause sick school syndrome are molds, pet dander brought in by other students, problems with heating and ventilation units, improper use of chemical solvents or cleaners in the schools, and pesticide use on the grounds.

He says it's a mistake to think that the issue is one that affects only older schools that need a good cleaning, because many new schools also have environmental problems due to their location near contaminated land sites or the type of materials used in construction.

Sick school syndrome is also a condition that won't affect everyone exposed to the same irritants. Shannon says some students, such as those susceptible to allergies or asthma, may be more sensitive to their school environment and potential irritants.

Once diagnosed with sick school syndrome, the physician may be able to manage the symptoms with treatment, or recommend that the school remove or clean up the source of irritation. In more serious cases, the child may have to change schools, but Shannon says this usually the last resort.

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Statement of (Teacher) Joellen Lawson, Fairfield, CT

http://epw.senate.gov/107th/Lawson_100102.htm

Statement of Joellen Lawson, Fairfield, CT Made to US Senate Committe on Environment & Public Works , 107th Congress, about working in a moldy school and its devastating impact on her own health, as well as the health of others at the school.

Lawson's McKinley Elementary School - Dr. Santilli's Presentation

http://www.moldallergy.com/Allergy%20Presentation%20McKinley_SM_files/frame.htm

This is a presentation by Dr. John Santilli, Allergist, Bridgeport, CT, of the testing that occurred at McKinley Elementary School, the place where Joellen Lawson and many others became ill due to mold exposure. This author would like to point out that the use of the term "mold allergy" would imply that mold is not able to harm those who are not allergic. However, other studies have shown that mycotoxins DO harm cells in allergic and non-allergic victims.

CA Job Journal: Toxic Mold

http://www.jobjournal.com/mold/

Classic Account of Mold In An Office: What It Did To the Workers

This is quite a graphic chronicle of what happened to workers in an office who were exposed to mold. They moved out and were exposed a second time to mold in another office building.

Other Mold Exposure Testimonies

This is a collection of archived testimonies from mold impacted people. Some are about teachers, many are from

various types of people exposed either in the workplace or home.

Understanding Chemical Intolerance

http://www.immunesupport.com/library/showarticle.cfm?ID=3750&Reviewed=YES&t=CFIDS_FM

Article about CMS Understanding Chemical Intolerance: Information Concerning Multiple Chemical Sensitivity, Chronic Fatigue Syndrome, and Gulf War Illness ImmuneSupport.com 07-26-2002 A personal investigation by Don Richard Paladin (former teacher)

Your Health, A-Z: Hypersensitivity Pneumonitis Defined

Hypersensitivity pneumonitis refers to an inflammation of the lungs caused by repeated breathing in of a foreign substance, such an organic dust, a fungus, or a mold.

Hypersensitivity pneumonitis

http://www.healthatoz.com/healthatoz/Atoz/common/search/search.jsp?keywords=hypersensitivity+pneumonitis&pg=1

Definition

Hypersensitivity pneumonitis refers to an inflammation of the lungs caused by repeated breathing in of a foreign substance, such an organic dust, a fungus, or a mold. The body's immune system reacts to these substances, called antigens, by forming antibodies, molecules that attack the invading antigen and try to destroy it. The combination of antigen and antibody produces acute inflammation, or pneumonitis (a hypersensitivity reaction), which later can develop into chronic lung disease that impairs the lungs' ability to take oxygen from the air and eliminate carbon dioxide.

Description

Hypersensitivity pneumonitis (HP) is sometimes called "allergic alveolitis." "Allergic" refers to the antigen-antibody reaction, and "alveolitis" means an inflammation of the tiny air sacs in the lungs where oxygen and CO2 are exchanged, the alveoli. It also is known as "extrinsic" allergic alveolitis, meaning that the antigen that sets up the allergic reaction (also called an allergen) comes from the outside. Most of the antigens that cause this disease come from plant or animal proteins or microorganisms, and many of those affected are exposed either at work or in the course of some hobby or other activity. The first known type of HP, farmer's lung, is caused by antigens from tiny microorganisms living on moldy hay. An example of disease connected with a hobby is pigeon breeder's lung, caused by inhaling protein material from bird droppings or feathers. After a time, very little of the allergenic material is needed to set off a reaction in the lungs.

Roughly one in every 10,000 persons develops some form of HP. A mysterious aspect of this condition is that, even though many persons may be exposed to a particular antigen, only a small number of them will develop the disease. Genetic differences may determine who becomes ill; this remains unclear. Probably between 5% and 15% of all persons who are regularly exposed to organic materials develop HP. Most of those who do get it do not smoke (smoking may create the type of cells that take up antigens and neutralize them). The amount of antigen is an important factor in whether HP will develop and what form it will take. Sudden heavy exposure can produce symptoms in a matter of hours, whereas mild but frequent exposures tend to produce a long-lasting, "smoldering" illness. HP may be more likely to develop in persons exposed to polluted air or industrial fumes.

Typical changes occur in the lungs of persons with HP. In the acute stage, large numbers of inflammatory cells are found

throughout the lungs and the air sacs may be filled by a thick fluid mixed with these cells. In the subacute stage, disease extends into the small breathing tubes, or bronchioles, and the inflammatory cells collect into tiny granules called granulomas. Finally, in the chronic stage of HP, the previously inflamed parts of the lungs become scarred and unable to function, as in pulmonary fibrosis.

Causes and symptoms

A number of different types of HP are known, since a wide range of allergens may produce an allergic reaction in the lungs. Many of them produce similar symptoms and abnormal physical findings, but some have their own typical features. Some of the more common forms are:

Farmer's lung. Can affect any farmer who works with wet hay or other moldy dust. Small farmers who have to directly thresh and handle their hay are most at risk, as are those living in cold and humid areas where damp weather is common.

Pigeon breeder's lung. Also called "bird fancier's lung," it is second to farmer's lung as the best known type of HP. A substance has been found in pigeon droppings that may cause the allergic reaction, but there may be more than one such substance. Besides pigeons, the disorder may follow exposure to ducks, geese, pheasants, and even canaries. Parakeets produce an especially severe form of disease. Most patients are middle-aged women, who usually care for birds either at home or on bird breeding farms.

Bagassosis. Caused by bagasse, a substance produced when juice is extracted from sugar cane and is used in making paper and explosives. A fungus is probably responsible. Young and middle-aged men who work in the sugar industry are at risk.

Byssinosis. A similar condition affecting workers who inhale dust from cotton, flax, or hemp.

Humidifier lung. An acute form of HP caused by inhaling actinomycyetes, the same organisms that cause farmer's lung, which grow in contaminated humidifier vents, air conditioners, heating systems, and even saunas.

Other antigens. HP has been seen in persons working with detergents, silicone, mushrooms, cheese, wood dust, maple bark, coffee, and furs.

In the acute stage, patients with HP begin coughing, develop fever, and note tightness in the chest as well as extreme tiredness and aching, four to eight hours after the most recent exposure. Most patients are well aware of the connection between their work (or an activity) and their symptoms. After a time, patients may have trouble breathing. They also may lose their appetite, lose weight, and generally feel ill. Finally, in the chronic stage, the patient will have increasing trouble breathing and may sometimes wheeze. With advanced disease, the skin may appear bluish (because too little oxygen is getting into the blood). When the physician listens to the patient's chest with a stethoscope, there may be crackling sounds or loud wheezing. In the late stages, club-shaped fingertips are a sign that the patient has not been getting enough oxygen for an extended period of time.

Diagnosis

No single test can make a definite diagnosis of HP. The key is to relate some specific exposure or activity to episodes of symptoms. The chest x ray may be normal in the acute stage, but later may show a hazy appearance that looks like "ground glass." There may be linear or rounded shadows in the central parts of the lungs. Studies of lung function in the acute stage typically show abnormally small lung volume. The ability to breathe at a fast rate is impaired. Blood from an artery typically has a low level of oxygen. Later, when the lungs have begun to scar, the airways (breathing tubes) are obstructed and the rate of air flow is reduced.

Some experts believe that skin testing can help diagnose HP and show which particular antigen is causing the symptoms. Small amounts of several suspect antigens are injected just beneath the surface of the skin, usually on the arm or back, and the reactions compared to that caused by injecting a harmless salt solution. Another diagnostic test is to place a thin tube into the airways, inject a small amount of fluid, and draw it back up (bronchoalveolar lavage). A very large number of cells called lymphocytes is typical of HP, and mast cells, which are part of the immune system, may also be seen. Rarely, a tissue sample (biopsy) of lung tissue may be taken through a tube placed in the airways and examined under a microscope. Finally, a patient may be "challenged" by actually inhaling a particular antigen in the form of an aerosol and noting whether lung function suddenly becomes worse. This test is usually not necessary.

Treatment

Treatment of HP requires identifying the offending antigen and avoiding further exposure. Although it may sometimes be necessary for a patient to find a totally different type of work, often it is possible to simply perform different duties or switch to a work site where exposure is minimal. In some cases, (like pigeon breeder's lung), wearing a mask can prevent exposure. If acute symptoms are severe, the patient may be treated with a steroid hormone for two to six weeks. This often suppresses the inflammatory response and allows the lungs a chance to recover. In the chronic stage, steroid treatment can delay further damage to the lungs and help preserve their function.

Prognosis

In general, most of the symptoms of HP disappear when the patient is no longer exposed to the causative allergen. The actual chances of complete recovery depend in part on what form of HP is present. Older patients and those exposed repeatedly for long periods after initially developing symptoms tend to have a poorer long-term outlook. The worst outcome is that long repeated episodes of exposure will cause chronic lung inflammation, scar the lungs, and permanently make then unable to properly provide oxygen to the blood. Rarely, a patient will become permanently disabled.

Prevention

It is often not possible to prevent initial episodes of HP, because there is no way of predicting which individuals (such as farmers) will have an allergic reaction to a particular allergen. Once the connection is made between a type of exposure and definite hypersensitivity symptoms, prevention of further episodes is simple as long as further exposure can be avoided.

Exactly how to avoid exposure depends on a person's work or activities and what he or she is reacting to. People with farmer's lung can dry hay thoroughly before storing it. For pigeon breeder's lung (and many other types of HP), a mask can be worn. In many industrial settings, it is possible to take precautions that will limit the amount of allergen that workers will inhale. If it is not possible to avoid exposure altogether, exposure can be timed and strictly minimized.

For Your Information

Resources

Organizations

American Lung Association. 1740 Broadway, New York, NY 10019. (800) 586-4872. http://www.lungusa.org.

Asthma and Allergy Foundation of America. 1233 20th Street, NW, Suite 402, Washington, DC 20036. (800) 727-8462. http://www.aafa.org.

Source: Gale Encyclopedia of Medicine, Published December, 2002 by the Gale Group

The Essay Author is David A. Cramer, MD.

This article was updated on 08-14-2006

Medical Writer on Safe Schools

http://www.head-gear.com/SafeSchools/irene.html

Ms. Wilkenfeld has been a professional free-lance medical writer on environmental topics, including healthy homes and schools. She was a former teacher who was exposed to chemicals in the workplace, recently deceased.

Sick Building Syndrome (SBS) : US EPA Information Sheet

http://www.epa.gov/iaq/pubs/sbs.html

Note: this is an older, quite dated info sheet

Breaking the Mold Video for Classroom Use

http://enviromysteries.thinkport.org/breakingthemold/

Asthma. Rising cancer rates. Viruses we have never heard of before. Just a few of the incredibly complex health problems that confront society today. What part does our environment play? That's the question EnviroMysteries sets out to answer.

Through intriguing dramatic videos supported by clear print and Web materials, middle grade teachers can help their students become detectives-investigating the connection between where we live and how we feel. "Breaking the Mold" has a running time of approximately 27 minutes.

You may choose to view the drama in its entirety or break your viewing experience into segments to allow for classroom discussions and activities. We've outlined some ideas for how to use the video with your class.

Before Watching the Drama

While Watching

After Watching Documentary

Discussions

One School's Mold Problem

A recent CBS News story tells us that mold has found its way into some schools. McKinley Elementary School in Fairfield, Connecticut had to close its doors to students and teachers when stachibotrys mold was found growing in storage areas. 40 to 60 teachers and students got sick, with two having to go to the hospital. Administrators at the school got suspicious when an unusual number of students and staff reported similar symptoms - trouble breathing, neurological disturbances, and fatigue. When investigator Dr. John Santilli was called in, he found that flooding over the summer had left the materials closet damp. When the closet was opened, the black stachibotrys mold was found covering the walls and supplies. Students at Whitaker Middle School in Portland, Oregon had a similar story to tell. Parents noticed that their children were complaining of similar flu-like symptoms and seemed unusually fatigued. “I felt like something was standing on my chest,” said teacher Janis Ingersole. “My skin was crawling. I had hives and my face was puffed up like a pink.” Administrators first feared it might be radon, but an investigation revealed that the pipes of an old drainage system had leaked. The damp environment created by the seeping water created a perfect breeding ground for the dangerous mold.

CBS reported that some 14 million American children attend schools with poor environmental conditions. In the last decade the rate of allergic disease — like asthma — has doubled in the nation's classrooms.

Good Housekeeping Report on Sick Schools

http://www.bbjenviro.com/news_indoor_air_053199.asp

May 31, 1999

Bad ventilation, moldy walls, leaky pipes. Across the country, students and teachers are getting seriously ill from classroom contaminants.

At 15, Shawn Villwock was like any other teenage boy with energy to burn. He loved skateboarding, swimming, and just romping through the house with his four younger brothers. But soon after Shawn started his freshman year at St. Charles High School, some 40 miles west of Chicago, his mother, Cathy Villwock, began to see frightening changes in her eldest son. He came down with a case of bronchitis that wouldn't go away, and a fatigue that knocked him flat. At first, Cathy figured he just wasn't getting enough sleep — and when school recessed for the year and Shawn quickly returned to normal, her worries faded.

Then classes resumed in fall 1997, and Shawn's health problems reappeared. Cathy began to chart his condition, and a

disturbing pattern emerged: Each weekend her son felt fine, but by Wednesday the school nurse would be calling her to come and take him home. Phyllis Popp, Shawn's biology teacher, remembers that he would sit in class with his head back, his eyes rolled up, and his mouth gaping open. "He wouldn't be able to get up without help," she says. "I remember thinking, 'Did they send a child with developmental disabilities to my class without telling me?'" Doctors diagnosed recurring respiratory infections and repeatedly put Shawn on antibiotics, but the medications didn't help.

Elizabeth Steinberg, a member of the tennis team at Shawn's school, was having similar problems. During the fall of 1997, the 16-year-old suddenly began suffering from nausea, headaches, and severe sinus infections. On game days, she'd sometimes have to go to the nurse's office to rest, but usually refused to go home. "You can't play if you're out sick," she notes. But occasionally, "it would be so bad I just had to miss my match." Steinberg was treated with antibiotics and had sinus surgery, but neither improved her condition.

Over the last few years, dozens of teachers and students at St. Charles High have complained of headaches, fatigue, dizziness, and respiratory infections that tend to subside or disappear during weekends and vacations. Doctors who have treated these people believe the building is making them sick. "I have told some of my patients that they shouldn't be in that school," says William R. Panje, M.D., director of The Midwest Sinus Center and president of the American Rhinological Society. "There definitely seems to be a reaction to the school."

Is Your Child at Risk?

Fears about indoor air quality first received widespread attention in 1976, when about 200 members of the American Legion contracted a form of pneumonia at a convention in Philadelphia. Thirty-four Legionnaires died, and the cause of the illness, later named Legionnaires' disease, was traced to bacteria in the hotel's air-conditioning system. Since then, most research into the problem has focused on government and commercial office buildings. Schools have received less attention — and less help. Among the hundreds of schools that have reported serious air-quality problems just in the last year:

Nazareth Area High School (built in 1955) in Nazareth, Pa., where portions of the school still show signs of fungal contamination despite an ongoing cleanup effort that will cost about $2.6 million.

Crescent Elementary School (built in 1965) in Suisun City, Calif., where students are housed in portable classrooms due to microbiological contamination found in the main buildings, which have been closed since November 1998.

Charles Haskell Elementary School (built in 1984), Summit Middle School (built in 1989), and Santa Fe High School (built in 1992) in the Oklahoma City area, all of which have been tested and found to have air-quality hazards including a toxic fungus. Cleanup costs are expected to be about $4 million.

White Center Heights Elementary School (built in 1943) in Seattle, which closed in August 1998 after toxic mold caused by leaky roofs and pipes and inadequate ventilation was discovered.

In each of these schools, students and teachers have complained of nasal congestion, headaches, and fatigue; and in some cases, more serious problems have been reported, including dizziness, joint pain, and other unexplained chronic illnesses. Since the cleanup at Nazareth High, 15-year-old Brett Hensley has bounced back from a disabling fatigue that kept him off the baseball team for an entire season. But more tests will be conducted at the school this spring, and students and teachers alike remain concerned about any remaining conditions that may be jeopardizing their health.

"I go to work every day just as I always have," says Larry Oberly, a social studies teacher there who suffers from congestion, joint pain, and fatigue. "But in the back of my mind, there is always the question, 'Should I be here?'"

Diagnosing Air-Quality Illnesses

Sicknesses related to indoor air quality often mimic allergies or the flu — eye, nose, or throat irritation; dry mucous membranes; headaches; fatigue; dry or itchy skin; and/or difficulty breathing or chest tightness. To determine if your

child's school is the source, first ask your doctor to help eliminate other causes. If the symptoms seem to be caused by environmental factors, monitor your child carefully. Illnesses that abate or disappear when the child is away from school may be a red flag for unhealthy conditions, experts say.

The Health Risks

For scientists, part of the challenge is figuring out why indoor air pollution seems to make some people severely sick, while others experience only minor symptoms or none at all. The other part is firmly establishing cause and effect. "We've seen plenty of data to support the link between indoor air-quality problems and dry throat, dry eyes, nasal congestion, fatigue, and headaches," says Robert Malkin, a supervisory epidemiologist at the National Institute for Occupational Safety and Health (NIOSH), who investigated St. Charles High. In addition, says Malkin, there is strong circumstantial evidence linking exposure to chemical pollutants and fungal contaminants with asthma and sinus infections.

Health problems often occur among inhabitants of schools and other structures that have "sick building syndrome," a condition that causes a pattern of symptoms, which was first recognized by the World Health Organization in 1983. The syndrome is closely linked to a generation of airtight buildings constructed beginning in the 1970's in an effort to conserve energy. In schools, the problems have often been compounded by shoddy maintenance, which has made some buildings ideal breeding grounds for bacteria, molds, and fungi, according to Jed Waldman, chief of the indoor air-quality section of the California Department of Health Services. But the problem isn't limited to newer buildings: Classroom trailers, widely used to handle overcrowding in schools, can trap unhealthful gases because these structures tend to have inadequate ventilation systems, and older schools with water leaks are also vulnerable to molds and fungi.

Among the most dangerous of these substances is Stachybotrys, a toxin-producing fungus that can suppress immunity and cause headaches, fatigue, and, in large doses, even death. According to one study, several infant deaths in Ohio dating back to 1993 are believed to be linked to Stachybotrys, which was found in victims' homes following regional flooding. Preliminary research indicates that Stachybotrys may exist in up to 20 percent of American schools that have had water damage — and "almost every school in the country has had water damage," warns J. Danny Cooley, Ph.D., a microbiologist at Texas Tech University Health Sciences Center.

"Stachybotrys is a bigger player than we ever thought, and that's real cause for concern," says Cooley. "We know that high-level exposure to Stachybotrys will kill people. Right now, we're doing research to determine the impact of low doses." Scientists are also concerned that indoor air pollutants may be more harmful to children than to adults. Kids are more vulnerable because their bodies are still developing.

Who's Protecting the Children?

Fixing school air quality is complicated because there are no laws that set indoor air-quality standards for schools — or any other buildings. Worse, no state or Federal agency is responsible for ensuring that children are protected from unhealthy indoor air. NIOSH, a branch of the Department of Health and Human Services, is required to investigate only workers' complaints. "Schools fall through the cracks," says Joan Daisey, Ph.D., head of the indoor environment department at Lawrence Berkeley National Laboratory in Berkeley, Calif. "Children can't solve this for themselves."

And when it comes to budgets, clean air has not been a high priority. "Maintenance is expensive, and when education dollars are tight, it often falls to the bottom of the list," says Minnesota State Senator Charles Wiger, who is sponsoring a measure that would provide $125 million annually for school repairs, with nearly a quarter of that sum reserved for air-quality hazards. "Repairs don't have the pizzazz that computers do."

Minnesota has already made progress in improving air quality in its schools. In 1997, lawmakers approved a bill requiring each school to file an Indoor Air Quality Management Plan with the state. And in Vermont, the state health department has assisted nearly 100 schools with voluntary implementation of air-quality improvements. In addition, indoor and outdoor school pesticide use is restricted or regulated in Arizona, Lousiana, Michigan, Montana, Tennessee, and Texas.

Fighting for Healthier Schools

Claire Barnett, executive director of the Healthy Schools Network, Inc. in Albany, N.Y., (a national advocacy group that fights for clean air in schools) has a few suggestions for parents.

As a first step, Barnett suggests parents contact the Environmental Protection Agency and ask for its IAQ (Indoor Air Quality) Tools for Schools kit. The kit includes a recommended action plan and a video that demonstrates proper maintenance of air-handling systems. The kit also tells how to find qualified independent experts to tackle complex problems. Tools for Schools is available at no charge to schools and school-related organizations, and can be purchased by others for $22.50. To order, call (800) 438-4318.

The Lasting Damage

For the students of St. Charles High, change can't come too soon — and many fear it may come too late. Complaints about the school date back to the early 1980's, and grew louder in 1994, when mysterious fumes forced evacuation and sent 31 people to the hospital. All of the problems seemed to center in the school's South Building — an airless, virtually windowless brick box built in 1973.

Water-streaked walls and sloppily repainted ceiling tiles tell the tale of a chronically leaking roof that has created an ideal environment for hazardous molds and fungi. And the ventilation system, designed for once-popular open classrooms for some 1,600 students, was never revamped when the building was partitioned to accomodate 3,000 pupils. In "the Dungeon," a long area built partly below ground level, hallway vents were walled off from the classrooms.

State public health officials documented inadequate ventiliation after the 1994 incident, and recommended improvements, including better cleaning and maintenance and increasing fresh-air flow. Renewed complaints by Villwock and other parents convinced the school to conduct independent air-quality tests in 1997, which showed poor fresh-air intake and elevated levels of molds. In 1998, NIOSH tested the school and found elevated carbon-dioxide levels, molds, and — in a classroom where seeping rainwater frequently soaked a wall — Stachybotrys.

Last October, the school board approved $5.6 million for a new heating and ventilation system. In addition, the school district spent $1.25 million last summer to repair three quarters of the roof and to get rid of moldy carpeting and ceiling tiles. Despite the recommendation of NIOSH inspectors that the whole school undergo more comprehensive testing, School Board Superintendent Fran Kostel says he is "not sure at this point" whether the district will do so — a position that has outraged some parents and teachers.

"No one knows what the long-term effects will be," says Diana Heisler, whose son, Greg, was found to have traces of Stachybotrys in his blood. "I don't think it's too much to ask that we have a safe, healthy school for our kids."

Shawn Villwock and Elizabeth Steinberg have left St. Charles rather than put their health at risk. Now 18, Shawn attends an alternative high school nearby, but he still battles frequent respiratory illnesses his doctor says are linked to past exposure at St. Charles. "I wouldn't walk through that South Building for anything," says Shawn. Elizabeth, 18, is now completing her high school diploma at a local community college, and she hasn't had a sinus infection since she left the school. "I feel good again," she says. Greg Heisler, also 18, has decided to finish his junior year at St. Charles, despite experiencing continuing chronic fatigue and sinus problems. Greg's parents are considering hiring a home tutor so he will not have to go to school, but so far Greg has resisted, saying he doesn't want to leave his friends. Still, he knows his choice may not be the right one.

"I feel really out of it, and I have a hard time concentrating whenever I'm in the South Building," he says. "It makes me wonder how much more I could learn if I felt better."

Dangers in the Classroom

Carbon Monoxide: drawn in through vents can inhibit oxygen intake, causing dizziness, impaired vision and reduced brain function.

Bacteria, Fungi and Molds: found in watered-damaged walls, floors, ceilings and HVAC systems can cause allergic reactions, sinus infections, breathing problems, and joint aches.

Inadequate Fresh Air: can cause sleepiness and headaches.

Volatile Organic Compounds: (VOC's) are used in copiers, cleaners, solvents, and paints; and microbes during their growth give off VOC's. Can cause eye, nose, and throat irritation, headaches and dizziness.

Irritant Dust: in air-ventilating systems, or from construction, can cause itchy, red eyes, runny nose, and other allergic reactions.

Pesticides: chronic exposure to some pesticides can result in damage to the liver, kidneys and nervous system.

Formaldehyde: in the new carpeting, vinyl flooring, or furniture may cause burning and itching of the nose and eyes.

SCHOOL ISSUES ARTICLE

Environmental Problems

Blamed for Making Kids Sick

In the first part of the special report Sick Schools: A National Problem, Education World news editor Diane Weaver Dunne describes how environmental conditions in school may make students sick, yet no federal laws protect students from exposure to contaminants that pose potential health risks. Included: Tips from the EPA for improving indoor air quality.

Note: This article is part of a five-part series originally published in June 2001. Links have been updated for this reposting of the article.

Ten-year-old Hope Carlson has been doing her daily schoolwork at home since last winter -- on her doctor's advice. Though the Windham (N.Y.) fifth grader had begun the school year in good health, by last October, her asthma had significantly worsened. She became lethargic, developed dark circles under her eyes, complained about chronic headaches, and no longer wanted to play with her friends.

Sick Schools: A National Problem

Be sure to read all five parts of Education World's special report on the environmental conditions of our nation's

school buildings, the health consequences for students and staff, and what school officials can do.

* Environmental Problems Blamed for Making Kids Sick

* Environmental Injustice: Poor and Minorities Suffer Most from Sick Schools

* Schools + Landfills Might Add Up to Health Problems

* Causes and Effects of Sick Schools Vary

* Sick Schools Create Dilemma for School Districts

"I felt like I was watching her die," says Mary Weston, Hope's mother.

Hope's doctor suspected that the environmental conditions in Hope's classroom might have been causing her illness -- a condition referred to as a building-related illness, or sick-school syndrome.

Hope's classroom was located in an older addition to the Windham-Ashland-Jewett Central School. Her symptoms improved soon after she began studying only at home.

INSPECTIONS FOLLOWED

Mary Weston met with school officials. She strongly advocated closing down the section of the K-12 school her daughter attended. School officials responded to her concerns about indoor air quality and mold contamination by having the building inspected by the state's department of health. A state inspection of 13 sections of the school found three areas with slight to moderate mold growth. Based on those findings, the state determined the school did not have a mold problem. However, Weston countered that the testing was not an accurate depiction of the environmental conditions of the classroom, noting that school staff had filled some of the vents with cement and removed some of the discolored ceiling tiles.

A subsequent state inspection found that the classrooms had poor ventilation based on high carbon dioxide readings. Carbon dioxide by itself does not make people sick, but it does indicate inadequate ventilation, the state report said. Of the 14 carbon dioxide readings, six were more than twice the recommended level. Carbon dioxide levels were reduced in some classrooms only when the windows were opened. But open windows resulted in a chilly, uncomfortable room, the report also states.

"My daughter was going to a school that was not ventilated, is filthy, and has had a ceiling that has been leaking for six years," Weston says.

School superintendent Thomas E. Wolf and the state health risk officer assigned to evaluate the school did not return calls from Education World about the school's condition.

Wolf banned Weston from entering school property after arranging for home tutoring for Hope. He cited the district's policy governing public conduct, which lists more than 20 conducts prohibited on school grounds, as the reason for banning Weston from school grounds. He did not, however, specify which rule Weston violated.

In a letter to school parents, Wolf explained that school officials have contracted with an industrial cleaning consultant as well as consultants to conduct further testing of mold, lead, carbon dioxide, and radon.

STUDENTS NOT PROTECTED BY FEDERAL LAWS

Weston's struggle to improve the environmental conditions of her daughter's classroom is not unique. Nearly one-fifth of the nation's population spends its days in school buildings, yet no federal laws protect students and teachers from environmental conditions in or near those buildings that pose potential health risks. In addition, no federal laws establish indoor air quality or ventilation standards, guidelines for the use of pesticides in and outside of classrooms, or standards for locating new schools near industrial facilities that emit toxins or on landfills.

"It is stunning. Children are at the bottom of the totem pole. They don't have political clout," says Claire Barnett, director of the New York Healthy Schools Network.

"Basically, no one is responsible for sick schools," comments Claire Barnett, director of the Healthy Schools Network (HSN), a state-based advocacy group. "It is stunning. Children are at the bottom of the totem pole. They don't have political clout."

Though adults who work in the private sector enjoy the protection of the Occupational Safety & Health Administration, children do not benefit from occupational health and safety standards, Barnett says. Some states have adopted OSHA guidelines for pubic employees; however, OSHA established standards based on exposure limits for healthy adult males, Barnett points out. "OSHA has nothing to do with women and children."

EPA PROVIDES TOOLKIT FOR SCHOOLS

Although no federal indoor air quality standards protect women and children in schools, the Environmental Protection Agency does provide some guidance for schools.

The EPA provides a written guidebook that schools can use, says Mary Smith, director of the Indoor Environments Division of the EPA. The Indoor Air Quality Tools for Schools guidebook was created in response to a 1995 General Accounting Office report that found that ventilation was a problem in many of our nation's schools.

According to Smith, setting standards for indoor air quality is difficult. "We do not have a clear sense of what level [of volatile organic compounds] becomes an issue for health," she said. Volatile organic compounds, referred to as VOCs, are characterized as any compounds of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate that participate in atmospheric photochemical reactions. VOCs are commonly found in copiers, paints, cleaners, and solvents.

"There is no requirement, federal standard, or legislation for school ventilation rates," Smith explains. "It is up to the school districts." However, voluntary standards are available that guide the installation of ventilation systems when new schools are constructed, she adds.

Tips to Improve Indoor Air Quality

The Environmental Protection Agency attributes most indoor air problems to a variety of particles and gaseous contaminants that can be reduced when school staff follow simple practices. Those practices include the following:

Control pollution sources such as art supplies and laboratory activities.

Control temperature and humidity.

Control moisture.

Clean up spills.

Ventilate each classroom adequately.

Perform regular housekeeping and maintenance operations.

Use integrated pest management, a method that effectively eliminates pests while minimizing the use of pesticides.

The EPA's Indoor Air Quality (IAQ) Tools for Schools Kit can be downloaded from the EPA's Web site. Or you may order the kit, which is free to schools and school districts, by calling 800-438-4318.

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Parents and Teachers Shut Down Moldy New School

Parents and Teachers Shut Down Moldy New School

Volume 2, Number 6

by Paul Ruther

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When plans were announced in Girard, Ohio to build a new intermediate school for grades four to six, parents and teachers were ecstatic. The school it would replace had been built in 1919 and was expensive to maintain and uncomfortable to teach and learn in. The new school opened in September 2000, only ten months after groundbreaking, while construction on the building continued.

But the enthusiasm didn't last long. The new building was so rife with environmental hazards that teachers and students became sick only days after classes started. It took angry parents working from outside the school and teachers working from within the school only nine months to have the new facility shut down for repairs. Here's how the parents and teachers of Girard Intermediate School took on the city's school district, shut down the school and brought a "sick" building back to partial health.

Sick School Syndrome

Parents credit fifth grade science teacher Chris Notareschi with being the first to realize the link between teachers' and students' health problems and the new building. Initially, the excitement of teaching in the new school prevented Chris from focusing on her burning eyes and bad headaches, but soon she was spending time online trying to figure out what was making her and others sick. What she learned was that people in a new building are under a virtual chemical assault from gases coming from paint, newly installed carpets and carpet pads, particleboard in furniture and building materials, solvents, and pesticides. These chemicals, she learned, can make people sick, sometimes very sick.

Moreover, mold soon became a serious problem due to a leaking HVAC system and inadequate ventilation. A distinctive "mold" odor permeated the building. Mold could even be seen beneath the carpeting. One teacher reported that there

was mold in the library's new books.

Throughout the fall, teachers and students in the school complained of burning eyes and nasal passages, sore throats, headaches, nausea, and fatigue. All of these symptoms seemed to diminish significantly when individuals were away from the building. In November, after the school nurse told her about "sick school syndrome," Chris became convinced that people were getting sick from the new school. As building representative for the school, Chris felt obligated to inform the school district of the building's problems. She informed Principal Bob Foley and Superintendent Tony D'Ambrosio of the teachers' many complaints, and in mid-November, the superintendent reluctantly ordered environmental testing.

She and the other teachers recommended that the principal send letters home to parents warning them of the building's environmental hazards. However, several months later the superintendent presented Chris and other teachers with test results indicating that formaldehyde and other airborne toxins were below detectable levels. Chris was shocked. The superintendent now dismissed the teachers' recommendations with the reply that "there was simply nothing to report." Only later did parents and teachers learn that the environmental report the superintendent received in December had indicated that there were species of mold in the school "capable of being pathogenic to humans" and that the superintendent had refused to authorize a cautionary letter to parents on the grounds that it would induce "panic."

Meanwhile, parents in the community were largely unaware of the danger. Cathy Ross remembers that in November her daughter was coming home from school with red eyes but that her symptoms were mild compared to many other children's. A friend who worked in the school library reassured her that the symptoms experienced by some teachers and students were being addressed through environmental testing and that there was nothing to worry about.

While parents and teachers complained in person or in writing to Principal Foley, their actions were not coordinated and produced no results. Then, in early spring, one frustrated community member leaked information to a local TV station, resulting in a report on a "mysterious illness" plaguing the school. The report prompted Principal Foley—acting without authorization from the superintendent or school board—to finally send home the long-requested warning letter.

Forming a Parents' Group

Unsatisfactory conversations with the superintendent and several school board members galvanized Cathy to form a parents' group. Tapping into widespread community anger and frustration, Cathy and several other parents drew 75 people to the group's first meeting, including the school nurse, Chris and several other teachers. The Girard Concerned Parents Group (GCPG) was born.

Prior to the meeting, Cathy and several other parents had determined that the City of Girard Board of Health could be a key ally in pressuring the superintendent and school board, and they scheduled the first meeting on the same night the board of health was meeting. After discussing their concerns and recording the symptoms affecting their children, the group marched en masse to the health board meeting and demanded they intervene to protect the school's children and teachers.

GCPG then created a steering committee to inform the community about the health issues. At the first community-wide meeting, microbiologists from Youngstown State University gave a presentation on the problems of mold in schools. But the group's efforts to impress upon the superintendent the seriousness of the problem were not well received. The school administration informed GCPG that since the group was not an official party they were not deserving of information or communication.

The group's frustration increased on learning that the school board was intent on ignoring a ten-step directive from the health department that would improve environmental health conditions at the school. The directive advised shutting down the school temporarily if all ten steps were not completed.

By May, Cathy had become GCPG's principal community contact, and as the warmer months arrived, she began to receive numerous calls from angry parents reporting that their children were sick. Because of the district's strict attendance policy, not many children missed full days of school. But by April the school nurse was reporting that she was receiving an average of 64 students a day and sending many of them home. This led to the rescinding of the school's absentee policy-but not to action to address the cause of the health problems.

The Teachout

The solution was for parents and teachers to work together. GCPG asked Chris, who by now had bronchial spasms and was using an inhaler, if she and other teachers would consider holding classes outside. The group assured her of GCPG's support and promised complete solidarity if any effort was made to threaten teachers' jobs. All 21 teachers supported the plan.

Not surprisingly, when the day came, the teachers were very organized and maintained class schedules perfectly. For one and a half hours all of the school's classes were taught outdoors. But the response of the school authorities was swift and heavy-handed. The principals of all of the city's schools arrived at the intermediate school and ordered the teachers back into their classrooms, threatening that the superintendent would fire them if they disobeyed.

Once the teachers began to take the children back to their classes, the parents began to arrive. According to Cathy, by one o'clock, parents had taken home 280 of the 405 students. The media arrived around lunchtime whn the teachers were back inside, but local reporters managed to interview Chris and film numerous parents removing their children from the school. That afternoon Superintendent D'Ambrosio, vacationing in Florida, called Chris, and, with ocean waves pounding in the background, demanded to know what it would take to get the teachers back in the school. Chris's reply, punctuated by the spasms of coughing, was that he should shut the school down until it could be made safe. That weekend, the school board announced that it was closing down Girard Intermediate School for repairs. The repairs continued into the next school year, forcing the two younger grades back to the old school while the sixth-graders moved to the city's junior high.

(to be continued in next issue)

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NYU Medical Patient Info: Sick Building Syndrome

http://www.med.nyu.edu/environmental/outreach/sickbuilding.html

CLICK ON LINK ABOVE FOR LINKS TO DOCUMENTS DESCRIBED BELOW

Patient Education Information

EPA: Sick Building Sydrome - This fact sheet, provided by the United States Environmental Protection Agency, will explain the syndrome, the investigation procedure, and the solution.

Hometime.com: Healthy Homes - A summary of problems, and also the solutions, that may contribute to your home's poor air quality can be found here.

Addressing the Psychological Aspects of Indoor Air Quality - This is a reprint of a paper that was authored by a professor at Cornell University. The psychological aspects associated with indoor air quality, including sick building syndrome, are discussed.

NOTE: THE ABOVE PAPER, AUTHORED IN 1992, SHOWS, HISTORICALLY, HOW, BEFORE IT WAS UNDERSTOOD THAT CHEMICALS AND MOLDS MADE PEOPLE ILL, THAT IT WAS THOUGHT THESE ILLNESSES WERE IMAGINARY. NOW, THIS IS CONCEPT IS KNOWN TO BE FALSE BY EVERYONE EXCEPT SOME INSURANCE COMPANIES AND THOSE WITH HIGH LIABILITY. TOBACCO SCIENCE REPEATING HISTORY.

American Lung Association: Air Quality in Large Buildings - This site offers a general discussion of sick building syndrome and tips on what can be done in large buildings to improve air quality.

Indoor Air Quality (IAQ): Glossary of Terms - The terms found at this site were compiled by the IAQ, a division of the Environmental Protection Agency.

National Safety Council: Sick Building Syndrome - The National Safety Council offers tips on keeping buildings healthy.

NIOSH: Indoor Environmental Quality - The National Institute for Occupational Safety and Health (NIOSH) is the Federal agency responsible for conducting research and making recommendations for the prevention of work-related disease and injury. This fact sheet will discuss environmental problems that may be present in large buildings.

Sick Building Syndrome - NYU Medical Center provides these fact sheets on sick building syndrome and how to make your home healthy. They also provide a button to have the pages translated into: Español, Francaise, Italiano, Deutsche, or Portuguêse.

*Sick School Syndrome - KidsHealth offers ideas on what should concern parents about the actual school buildings.

(*NOTE: INTERESTINGLY ENOUGH, KIDSHEALTH HAS PULLED THAT ARTICLE FROM THEIR LIST)

AFT Slideshow of Building Conditions

Visit the American Federation of Teachers Slideshow of Building Conditions, many of which involve water damage that cause mold. The American Federation of Teachers has produced a document called "Building Minds, Minding Buildings", that describes the problem of poorly maintained school buildings and the impact on learning - see below.

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