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SEARCHING FOR THE CULPRIT A MOISTURE-LOVING FUNGUS IS TIED TO MYSTERY AILMENTS

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Illustration: Photos (2, color and b/w) Graphic (color) BEVERLY BYNUM/The Kansas City Star DAVE EAMES/The Kansas City Star; Sources: California Department of Health Services, Utah Department of Health, Case Western Reserve University Steve and Julie McGuire and their daughter Amy suffered various chronic health problems because of a mold, Stachybotrys atra, that was in their Lee's Summit home. Using tape, Children's Mercy Hospital industrial hygienist Sue Flappan collects a dust sample in an Overland Park home to test for the mold Stachybotrys. Tests proved negative. Where the mold grows

For about six months last year, the McGuire household in Lee's Summit was under siege by a little-known health hazard.
Amy, 15, was sidelined by chronic bronchitis and abdominal pains. Her mother, Julie, was knocked out by fever and chills. Her father, Steve, suffered bouts of bronchitis and pneumonia.

Finally, a home inspection by Children's Mercy Hospital last summer discovered the culprit: Stachybotrys atra, a greenish-black, slimy mold that thrives on water and construction materials such as wallboard that contain cellulose.

Mold spores had been released into their house, the McGuires realized, when a handyman replaced a leaky shower in their basement.

``When I told people, they thought I was crazy. ... People just don't want to believe mold can do that," Julie McGuire recalled.

But evidence is mounting that Stachybotrys is a health threat responsible for a host of hard-to-diagnose medical problems.

Researchers have identified the mold as the likely cause of potentially fatal lung bleeding in infants. They've linked it to asthma and other respiratory problems. And they've named it a suspect in sick-building and chronic-fatigue syndromes.

Some scientists remain skeptical, saying Stachybotrys isn't more harmful than

other molds.

``There's been a huge overreaction," said Dave Mannino, a lung specialist with the U.S. Centers for Disease Control and Prevention. ``Cynics say it's a chance to make money by charging for remediation the way asbestos is removed."

Stachybotrys (pronounced ``stacky-botris") has been found in houses, schools and office buildings nationwide. It can lurk inside walls, behind wallpaper, under carpets or on ceiling tiles where water leaks offer a breeding ground.

In the past nine months, the mold has slowed construction of a federal courthouse in St. Louis and forced the closing of a public library in New York City. In the Kansas City area, Stachybotrys recently was implicated as the cause of illnesses in an aging state office building downtown and in a Hallbrook mansion in Leawood.

``I think it's a missing link to a lot of questions we've had," said Sue Flappan, a Children's Mercy industrial hygienist. ``We've had patients go from doctor to doctor without any explanation of what is wrong. Once they get rid of the Stachybotrys problem, their life gets better."

Flappan inspects the homes of children like Amy McGuire whose respiratory ailments aren't responding to treatment. Flappan also has been called to schools, offices and nursing homes where there have been unexplained illnesses.

In 24 of 69 buildings Flappan has examined in the past two years, she has found Stachybotrys. Where the mold was cleaned up, health problems have lessened or disappeared.

``We've been surprised," Flappan said. ``This mold is supposed to be very infrequent, very rare. It's a lot more common problem than we ever thought it would be." Mysterious maladies

Like many other molds, Stachybotrys can trigger runny noses, sneezes and other allergic reactions.

But it also produces toxins that can cause memory and mood changes or flulike symptoms that include fatigue, sore throats, headaches and difficulty breathing, said Eckardt Johanning, a physician and environmental health specialist with Mount Sinai Medical Center in New York.

Stachybotrys also might be responsible for some cases of chronic-fatigue syndrome, he said.

There are no indoor air-quality standards to limit exposure to Stachybotrys or other molds, said Sidney Efross of the indoor air section of the Environmental Protection Agency in San Francisco.

``But the general consensus is mold doesn't belong inside," Efross said. ``There's probably nothing we can call a safe level" of Stachybotrys.

Stachybotrys began receiving national attention in 1997 after researchers in Cleveland linked the mold to serious and occasionally fatal lung bleeding in 21 infants. The infants lived in inner-city homes that had water damage from flooding or plumbing leaks.

As a result, the American Academy of Pediatrics urged doctors to try to ensure that infants were not be exposed to chronically moldy, water-damaged environments.

``There's no question that Stachybotrys can produce severe toxins. If people don't remediate (water damage), they can get very severe illness," said Dorr Dearborn, a pediatrician at Case Western Reserve University School of Medicine in Cleveland, who helped discover the connection between the illnesses and Stachybotrys.

Infants might be particularly vulnerable to Stachybotrys because their lungs are growing fast, Dearborn said.

As their lungs develop, capillaries grow to supply the lungs with blood. Stachybotrys produces toxins called trichothecenes, which inhibit production of a protein called collagen that makes capillaries strong.

If a baby's lungs are stressed by illness or secondhand tobacco smoke, capillaries weakened by trichothecenes could burst, Dearborn said.

Since the Cleveland cases, lung bleeding in infants has been reported throughout the United States.

It happened suddenly last December to 1-month-old William Rippy of Kansas City. His mother, Jodie Atherton, found him crying in pain. She picked him up. His breathing sounded funny. He began to pant.

Atherton got William to the Children's Mercy emergency room, where doctors saved his life.

William remained in the hospital for a week. Meantime, Flappan visited his home and discovered the likely cause of William's illness.

Above the closet of the baby's room was a leak in the roof. Stachybotrys was growing on the closet wall and ceiling.

William's father scrubbed out the closet and the roof leak was repaired. William has been healthy since. Sick buildings

Many buildings harbor Stachybotrys, said David Straus, a professor of microbiology at Texas Tech University who investigates complaints of

sick-building syndrome.

The syndrome refers to a collection of maladies in people, including runny eyes and noses and flulike symptoms caused by indoor air pollution.

Stachybotrys forced the Missouri Division of Youth Services last year to close the program at its 934 Wyandotte St. office for children who have had run-ins with the law. Those children now attend a similar program on Main Street.

The mold appeared after the building was flooded by rains last summer.

Some experts say Stachybotrys doesn't deserve to be called a lethal mold.

``It's been well known that mold in general is related to respiratory symptoms ... ," Mannino said. ``Virtually no one at CDC says anymore that toxic molds kill babies."

Researchers who investigated cases of infant lung bleeding in Chicago and Detroit were unable to find the same link to Stachybotrys discovered in Cleveland, Mannino said.

The connection between Stachybotrys and deadly illness remains controversial among some scientists because it's very difficult to prove, said Berlin Nelson, a professor of plant pathology at North Dakota State University.

``Certainly, there's enough evidence that if you inhale enough of it you're going to get sick. But we don't know how much you have to inhale," Nelson said. Cleanup costly

Removing Stachybotrys can be an expensive and laborious process.

``It's pretty scary when they come out in their full-body suits and respirators," said Laurie Chubb about the workers who removed Stachybotrys from the basement playroom of her Overland Park house last year.

Workers pulled up carpet and padding, ripped apart a built-in cabinet, and tore out insulation and wallboard. Anything that couldn't be removed was bleached.

Two years ago, Laurie and Steve Chubb's son Brian, now 3, had a constant runny nose, wheezing and a cough like a smoker's hack every morning and evening. Just after his second birthday, he was diagnosed with asthma. His doctor prescribed four kinds of inhalers.

The Chubbs had Flappan inspect their house. She found significant amounts of airborne mold spores in Brian's room and the playroom.

The Chubbs moved Brian into his older brother's bedroom. They had the air ducts and carpets cleaned and installed an electronic furnace filter.

Mold levels declined, but Brian still had asthma attacks. Flappan made another visit. Laurie Chubb pointed out discolored wallboard from a basement leak: It tested positive for Stachybotrys.

That's when the Chubbs had their playroom ripped out. Brian's symptoms have disappeared. He no longer needs asthma medications.

Some homeowners are choosing to litigate when faced with water damage and Stachybotrys.

Jan and Anita Fichman became the talk of south Leawood last year when they wrapped blue plastic sheeting around their $500,000 Hallbrook house to keep out water.

They sued Hallbrook Realty, their builder and others, saying faulty construction let water into the house and allowed Stachybotrys to grow inside the walls.

The couple said the mold caused them and their two young sons to have recurring eye irritation, sinus infections, headaches and other allergic reactions.

The Fichmans eventually removed the plastic and settled their lawsuit, but they are prohibited by terms of the settlement from discussing the matter. Looking for clues

Research into Stachybotrys is under way at several medical centers to discover how the mold causes illness.

Dearborn of Case Western Reserve has found that newborn rats will die of lung bleeding when quantities of Stachybotrys spores are put into their lungs.

But he still is trying to explain how human infants might die by inhaling small amounts of spores.

Another reason for doubts about Stachybotrys' role in illness is that the mold often does not turn up in cultures from air samples. That's because the airborne spores die quickly, Dearborn said, even though their toxins remain dangerous for years.

Dearborn is working with the EPA on new genetic tests to identify molds from spores in air samples.

But the evidence against Stachybotrys is strong enough already to warrant caution, said Efross of the EPA.

``We can't wait for the definitive answer of how it gets from point A to B," he said. ``There is obviously a connection between Stachybotrys and bad health

effects. The thing to do is avoid it."

To reach Alan Bavley, medical writer for The Star, call (816) 234-4858 or send e-mail to abavley@kcstar.com Stachybotrys Q&A

What are molds?

Molds are simple, microscopic organisms found virtually everywhere, indoors and outdoors. They are a type of fungus that can be found on plants, foods, dry leaves and other organic material. Molds produce tiny, lightweight spores that are capable of growing into new molds.

Where is Stachybotrys found?

There are about 15 species of Stachybotrys worldwide. Stachybotrys molds are common in the western United States. They grow in areas where relative humidity is above 55 percent.

What do Stachybotrys molds look like?

They are generally dark olive-gray and appear to be a slimy mass with either a smooth or ridged surface. The spores are brownish. When the mold produces spores, it may appear to have a powdery surface.

When was Stachybotrys identified as a health hazard?

Russian scientists identified Stachybotrys in straw and feed grain as the cause of deadly disease outbreaks among horses and other animals in Ukraine during the 1930s. In the early 1940s, there were reports in Russia of people suffering from inflammations of the mouth and throat, chest tightness, fever, headache and fatigue after burning straw or sleeping on straw-filled matresses contaminated by Stachybotrys. Beginning in the 1980s, there have been numerous cases of Stachybotrys-related illnesses in homes and other buildings in the United States. Stachybotrys recently came to the attention of the medical community after the mold was linked to fatal lung bleeding among infants in Cleveland.

How is Stachybotrys removed?

Buildings with water damage should be repaired and all moldy material removed. Cleaning up mold growth covering more than two square feet requires professional advice or assistance.

Smaller areas of mold may be cleaned with a solution of one cup of household bleach mixed in one gallon of water with a small amount of dish soap. Apply the solution to the mold surface with a sponge, let it sit for 15 minutes, then thoroughly dry. Wear a dust mask and rubber gloves and make sure there is good ventilation.

Where can I get more information?

For a brochure and a screening questionnaire to determine whether your home may be causing health problems, call the allergy section of Children's Mercy Hospital, 816-234-3097.

Sources: California Department of Health Services, Utah Department of Health, Case Western Reserve University, North Dakota State University.
