

# GLOBAL INDOOR HEALTH NETWORK

"WORKING TOGETHER FOR HEALTHY INDOOR ENVIRONMENTS"

<http://globalindoorhealthnetwork.com>

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## GIHN New Member

We have one new member this month.

**Cheryl Harding, Ph.D.** lives in New Jersey. She has a Ph.D. in Psychobiology and is a professor and researcher at Hunter College, CUNY (City University of New York). Dr. Harding has 44 years of experience in her field and 6 years of experience investigating how exposure to low levels of intact *Stachybotrys* spores or just the spore skeleton causes neural inflammation, increases anxiety and fear, decreases balance, and causes striking memory loss in mice.

Please join me in welcoming Dr. Harding to GIHN.

## Timeline of Events in the Mold Issue

To learn more about the events relating to the history of the mold issue, check out this partial [timeline of events](#) through 2001.

## Nevada Health District Accused of Cover-Up in Employee's Death

Lies, cover-ups and hypocrisy at a government agency that's supposed to protect the public.

It's the stuff of conspiracy theories, but as Contact 13 Chief Investigator Darcy Spears reports, it's exactly what the Health District is accused of.

Dan Pauluk documented the end of his life in a series of videos.

**"I'm mad as hell! The Health District ruined my life! They ruined my family's life!" Dan says into the camera.**

His widow, Dr. Wendy Pauluk, recalls, "The pain, the agony, the suffering. His raw, weeping sores all over his body."

I first met the Pauluk family in late 2006.

Darcy: And here we are, nearing the end of 2013. Did you ever think you'd still be fighting this long after?  
Wendy: No, I never thought we'd be fighting this long.

Dr. Wendy Pauluk is fighting for justice and accountability from the Health District. "It's been consuming. They've taken away my reason to smile."

Dan Pauluk--a long-time health inspector and environmental health specialist--was just 57 years old when he died in the summer of 2007 from mixed mold mycotoxicosis--or mold poisoning.

Dan's family filed a federal lawsuit after doctors found he was exposed to the mold at work in the Environmental Health wing of the Health District's now-shuttered Shadow Lane headquarters. (The building was shut down in April 2012--almost overnight.)

Click [here](#) to read the entire article.

See *Parkinson's Disease Linked to Fungus* on page 2

## Symptoms of Parkinson's Disease Linked to Fungus

Scientists at Rutgers and Emory universities have discovered that a compound often emitted by mold may be linked to symptoms of Parkinson's disease.

Arati Inamdar and Joan Bennett, researchers in the School of Environmental and Biological Sciences at Rutgers, used fruit flies to establish the connection between the compound – popularly known as mushroom alcohol – and the malfunction of two genes involved in the packaging and transport of dopamine, the chemical released by nerve cells to send messages to other nerve cells in the brain.

The findings were published online today in the *Proceedings of the National Academy of Sciences*.

"Parkinson's has been linked to exposure to environmental toxins, but the toxins were man-made chemicals," Inamdar said. "In this paper, we show that biologic compounds have the potential to damage dopamine and cause Parkinson's symptoms."

For co-author Bennett, the research was more than academic. Bennett was working at Tulane University in New Orleans when Hurricane Katrina struck the Gulf Coast in 2005. Her flooded house became infested with molds, which she collected in samples, wearing a mask, gloves and protective gear.

"I felt horrible – headaches, dizziness, nausea," said Bennett, now a professor of plant pathology and biology at Rutgers. "I knew something about 'sick building syndrome' but until then I didn't believe in it. I didn't think it would be possible to breathe in enough mold spores to get sick." That is when she formed her hypothesis that volatiles might be involved.

Inamdar, who uses fruit flies in her research, and Bennett began their study shortly after Bennett arrived at Rutgers. Bennett wanted to understand the connection between molds and symptoms like those she had experienced following Katrina.



## Symptoms of Parkinson's Disease Linked to Fungus (continued)

The scientists discovered that the volatile organic compound 1-octen-3-ol, otherwise known as mushroom alcohol, can cause movement disorders in flies, similar to those observed in the presence of pesticides, such as paraquat and rotenone. Further, they discovered that it attacked two genes that deal with dopamine, degenerating the neurons and causing the Parkinson's-like symptoms.

Studies indicate that Parkinson's disease – a progressive disease of the nervous system marked by tremor, muscular rigidity and slow, imprecise movement — is increasing in rural areas, where it's usually attributed to pesticide exposure. But rural environments also have a lot of mold and mushroom exposure.

"Our work suggests that 1-octen-3-ol might also be connected to the disease, particularly for people with a genetic susceptibility to it," Inamdar said. "We've given the epidemiologists some new avenues to explore."

Bennett, also associate vice president for the promotion of women in science, engineering and mathematics at Rutgers, and Inamdar were joined by co-author Muhammad Hossein and Jason Richardson from Robert Wood Johnson Medical School, and Alison Bernstein and Gary Miller of Emory University.

The study was funded by Rutgers and the National Institutes of Health.

Click [here](#) to read the article.

## Churches Struggle with Moldy Organs (Germany)

Churches throughout Germany have an expensive problem: mold in the pipes of their organs. Experts are trying to work out why the classic instruments seem to be particularly hard hit in eastern Germany. Created by renowned 19th-century organ builder Friedrich Ladegast, the old organ in the Merseburg Cathedral in the state of Saxony-Anhalt lets loose an impressive blast of sound. But for a few years now, this "piece of history" has been suspected of substandard cleanliness. Mold has been growing on the inside of the pipes, and no one is sure when, exactly, that started happening.

**Since a lot of air is pushed out of the organ when it is played, experts are warning that spores can be distributed throughout the church. At the Merseburg Cathedral, the problem was originally identified nearly 20 years ago, when restoration work on the instrument began.**

Schönheit has yet to begin wearing a protective mask and gloves when playing the instrument. He also wonders what could have caused the mold to grow and how it could be removed. He is not the only one. **In the neighboring state of Saxony, Protestant Church authorities estimate that around one-third of its 1,500 organs are affected. Meanwhile, church representatives from other states have also increasingly complained of mold building up in their local organs.**

Many organs are lined with natural materials such as wood, leather and felt. These are particularly attractive to spores. And while mold infestation in organs is not a new phenomenon, it seems to happen a lot more today than in the past.

According to Gesa Graumann of the organ-building company Johannes Kleis in Bonn, **the problem is not limited to Germany.**

"We recently inspected an organ in England and found a lot of mold," Graumann told DW. She believes the main culprits are moisture and increased insulation in churches. "The problem has gotten worse in the last 15 years," she added.

Click [here](#) to read the entire article.



## When Indoor Air Gets Polluted

The air inside your home plays a huge role in the way you and the rest of your family feel on a day-to-day basis.

Most of us worry about the air quality outside. We have smog advisories, air quality alerts, and it seems like every day I see something in the news about pollution or gas emissions.

**But you want to know the hard facts? The air inside your home can be two to five times more polluted than the air outside. In some cases, it's 100 times worse.**

We are constantly exposed to pollution, toxins, pesticides, gases — even radon. Most of the time, these things get diluted into the air. But they can also find their way into our homes through tiny cracks in foundation walls and floors, through unfinished floors, windows, sumps, vents or gaps around pipes and drains.

The problem is that when these pollutants get into our homes and can't escape, they start to accumulate. In high concentrations, radon and other toxins can be big health risks.

Even the materials that we use to build a house can lead to poor indoor air quality — things such as volatile organic compounds or VOCs in paint and kitchen cabinets, or the adhesives and glues in carpeting and flooring. Some granite countertops have been known to emit radon too. It makes sense, because granite comes from the ground, where there's also uranium.

Click [here](#) to read the entire article.

See *Microbial Agents...Behavioural Problems* on page 4

## Indoor Microbial Agents Associated with Behavioural Problems in Children

The following abstract is from a 2013 research paper.

**Indoor microbial agents exposure is associated to depressive symptoms in adults and persistent exposure to indoor mould is associated to poorer cognitive function in children.**

In our study, we aimed to assess the effects of the exposure to indoor factors associated with increased microbial exposure (mould, dampness and pets) on behavioural problems in children aged 10 years, participating in two German birth cohorts. A total of 4860 children were followed until the age of 10 years, and the strengths and difficulties questionnaire (SDQ) was administered to the parents.

Indoor factors were assessed through parental reported questionnaires in periodical surveys. Logistic and multinomial regressions adjusting for potential confounders were performed. Prevalences of borderline/abnormal total scores in the SDQ at 10 years of age were higher in children exposed to mould (aOR=1.23, 95%CI=1.00-1.56), dampness (aOR=1.51, 95%CI=1.10-2.07), and pets (aOR=1.48, 95%CI=1.20-1.94).

The dimension "emotional symptoms" showed statistically significant risk estimates for mould and pets, meanwhile "conduct problems" and "hyperactivity/inattention" dimensions only did for pets. No significant associations were found for the "peer relationship problems" dimension.

We found a significant strong interaction between dampness and pet, the risk of borderline/abnormal scores in the "total difficulties" scale and the "emotional symptoms" dimension for pets' was at least twice the risk in children with reported dampness than in children without.

**Our findings point to a potential effect of microbial exposure on children's behavioural problems, especially on emotional disorders, probably mediated through neurotoxicity and immune system activation.**

Click [here](#) to read the abstract.



## \$4 Billion to Fix Environmental Problems in Philadelphia Schools

When Amy Schlein Kaufman steps into Lowell Elementary School in Philadelphia's Olney section, her eyes water, her nose runs, and the sneezing begins.

After years of teaching there, she is accustomed to carrying tissues. But with respiratory ailments affecting as many as 10 Lowell teachers, she worries that the century-old building may simply be unhealthy.

A former colleague at Lowell, art teacher Joyce Harris, shares that concern.

Last school year, Harris, 48, said she felt sick almost every day on the job - something she blames on "black mold" that was found in a storage area next to her basement classroom just as the year ended.

Even as the Philadelphia School District grapples with a high-profile financial crisis, its leaders must also fight a quieter, more insidious, and potentially far more expensive problem: maintaining its aging portfolio of more than 200 schools.

With an average age of 63, the buildings are beset with issues familiar to any owner of an old house: mold, lead paint, asbestos - all health hazards, especially for children.

**Officials recently estimated it would cost \$4 billion to rid every structure of problems, from replacing roofs to sealing walls that cannot keep out water.**

Click [here](#) to read the entire article.

See "*Slow Torture*" in *Mould-Ridden Schools* on page 5



## “Slow Torture” in Mould-Ridden Schools (Finland)

An Yle investigation suggests that widespread ventilation problems are leading to respiratory illnesses, closed-down classrooms and abandoned studies. **The teachers' union claims 250,000 schoolchildren and staff are affected.**

Finland is touted as having the best school system in the world, but pupils are being forced to abandon subjects or even move schools to avoid the chronic ill-health caused by widespread damp and mould problems.

The Trade Union of Education (OAJ) estimates that every day a quarter of a million children and adults attend schools with internal air problems. The union claims the bill for repairing the mould and damp problems is likely to run to a billion euros.

An Yle survey garnered over 700 responses from members of the public, of which over half were school pupils or parents of nursery-going children. Many described how problems with indoor air have had serious and repeated health impacts. These include headaches, asthma, nosebleeds, breathing difficulties and ongoing cold symptoms.

One alleged that poor building practices were directly responsible for problems: “In our area, a wonderful new school and nursery was opened in 2011. But the floor was laid on wet concrete and quickly began to reek. Shortly afterwards, the staff and the kids started getting ill. The nursery was closed down in May this year, and the school followed in August. Now all the kids are being taught in Portacabins.”

Some respondents claimed that the air problems are so widespread that even the new premises to which pupils had been evacuated were infested with the damp and mould, forcing them to be relocated a second time.

Almost half of everyone who responded to the survey said they felt they had no choice but to change class, school or nursery as a result of symptoms brought about by mould, damp or otherwise bad air inside the buildings. A number said they had been told not to speak publicly about the issue.

One said: “I work in building maintenance and I’ve been warned by my employer as well as the building manager not to mention the problems with indoor air.”



*Children relocating due to mouldy classrooms (Finland)*

## “Slow Torture” in Mould-Ridden Schools (Finland)--continued

One parent said: “The staff and children are getting ill. After less than an hour in my son’s nursery I could feel my throat swelling. I refuse to take him there anymore.” Another described the mould problem as “slow torture”, and another claimed that their two-year-old child had been given 17 courses of antibiotics in a year to treat a recurring ear infection, allegedly as a result of mould in the nursery.

Many survey answers described how the children’s education had been interrupted or even stopped altogether because of absences caused by respiratory illnesses in staff and children. One claimed: “The illnesses and symptoms made me isolated from my friends, and now I can’t go to school anymore.”

Another parent said: “In the space of a few weeks our lively child became withdrawn, and complained of constant headaches and joint pains.” “I don’t know how I’m going to finish my studies,” another said. “I’ve tried to transfer to a different school but couldn’t.”

Numerous respondents said they were teachers who had quit their jobs as a result of the ventilation problems. “I can no longer work as a special needs teacher because of the school’s bad condition,” said one. “I’ve given up being an IT-teacher partly because all the schools had mould and I couldn’t stand it any longer,” said another.

Click [here](#) to read the entire article.

See *Mold in Iowa Governor’s Mansion* on page 6

## State of Iowa Protects Governor from Mold (but won't acknowledge the dangers of mold during lawsuits)

*We have heard this same story previously in other states. State agencies will take action to protect governors from mold, but they won't acknowledge the dangers of mold during lawsuits.*

For over a year, a 145-year-old Iowa landmark has undergone some major restoration and mold remediation. Parts of Terrace Hill, also known as the Governor's Mansion, have been deteriorating and crumbling. Loose brick, rotting wood, unsealed windows and water leaks have led to some major issues.

"What happened was over the years the water leaked up over the edge and wood underneath deteriorated, so we had to take this off and repair the wood," Steve Ciha, The Ryan Companies.

"It was a challenge, 21 layers of paint on the outside," said Dave Bryson, The Ryan Companies.

The unsealed windows led to problems on the third floor where Governor Terry Branstad and his family live. Before the restoration, the First Lady, Chris Branstad, had experienced breathing issues and became sick with bronchitis-like symptoms.

She said that's when she knew it was the house making her ill.

"I knew it had to have something to do with the house, so I asked for an air quality test and low and behold, very, very high levels of mold," said Chris Branstad.

They stripped the walls and replaced the windows completely. The Branstad's now have a newly renovated home and the First Lady hasn't felt sick since.

Click [here](#) to read the entire article.

**Next Newsletter: January 1, 2014**



*State of Iowa Governor's Mansion*

## Associations Between Fungal Species and Water-Damaged Building Materials

Fungal growth in damp or water-damaged buildings worldwide is an increasing problem, which has adverse effects on both the occupants and the buildings. Air sampling alone in moldy buildings does not reveal the full diversity of fungal species growing on building materials. One aim of this study was to estimate the qualitative and quantitative diversity of fungi growing on damp or water-damaged building materials. Another was to determine if associations exist between the most commonly found fungal species and different types of materials. The results confirmed that *Penicillium chrysogenum* and *Aspergillus versicolor* are the most common fungal species in water-damaged buildings. The results also showed *Chaetomium* spp., *Acremonium* spp., and *Ulocladium* spp. to be very common on damp building materials. Analyses show that associated mycobiotas exist on different building materials. Associations were found between (i) *Acremonium* spp., *Penicillium chrysogenum*, *Stachybotrys* spp., *Ulocladium* spp., and gypsum and wallpaper, (ii) *Arthrinium phaeospermum*, *Aureobasidium pullulans*, *Cladosporium herbarum*, *Trichoderma* spp., yeasts, and different types of wood and plywood, and (iii) *Aspergillus fumigatus*, *Aspergillus melleus*, *Aspergillus niger*, *Aspergillus ochraceus*, *Chaetomium* spp., *Mucor racemosus*, *Mucor spinosus*, and concrete and other floor-related materials. These results can be used to develop new and resistant building materials and relevant allergen extracts and to help focus research on relevant mycotoxins, microbial volatile organic compounds (MVOCs), and microparticles released into the indoor environment.

### Quick Links:

**Website:** <http://globalindoorhealthnetwork.com>

**Health Effects:**  
[http://globalindoorhealthnetwork.com/health\\_effects.html](http://globalindoorhealthnetwork.com/health_effects.html)

**Position Statement:**  
[http://globalindoorhealthnetwork.com/files/GIHN\\_position\\_statement\\_Revised\\_12\\_17\\_2012.pdf](http://globalindoorhealthnetwork.com/files/GIHN_position_statement_Revised_12_17_2012.pdf)

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