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Energy efficiency, cleaners can create indoor pollution

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Emma Shapiro started her fifth birthday with a cold in her home in Harrison and ended it in the hospital with an acute asthma attack.

"She was at the point where her airways shut, and she was wheezing and couldn't breathe any more," her mother, Michele Shapiro, said of the day she and her husband, Robert, learned their daughter had developed asthma.

Emma, now a fifth-grader at the Harrison Avenue Elementary School, is not allergic to everything. The family has a wheaten terrier named Barney who sheds very little. Even so, they wash the dog every other week to keep the dander level low.

The family's home has no carpets, to reduce the collection of dust, and Emma's room has a particular air filter to protect her from any dust or other particles at night. "She has difficulty breathing at nighttime," said her mother. "When children are asthmatic, sleep is much more difficult. When they are lying down, their airways close up some, and you need that filter to help them breathe."

The Shapiros are like many families who cannot assume that the air they breathe inside their home is safe. With the use of central air conditioning and heating, humidifiers for moisture and plug-in air fresheners to mimic outdoor scents, today's homeowners can insulate themselves from the great outdoors and recycle the atmosphere they desire.

But when it comes to the quality of air inside the home, these self-contained universes can create health problems for residents.

"We are closing our homes, becoming more energy efficient, have better-sealed windows, and we keep breathing the same polluted air over and over and over again," said Allen Dozor, head of pediatric pulmonology at Westchester Medical Center. "A lot of people never open their windows. I think we are building homes that are poisoning us."

In these closed environments, Dozor and other experts said, residents' respiratory systems are assaulted by chemicals, germs, gases, dust, mold and other irritants. Some of the systems used to freshen indoor air simply mask potential problems or add their own pollutants to the household.

Indoor-air pollution - in the form of ozone, strong cleaning chemicals or cigarette smoke - poses less of a threat to the average, healthy adult. It is more of an issue with babies and small children, the elderly and people with respiratory problems, such as Emma Shapiro.

The young are at risk because their lungs are still forming, and their bodies respire at a much faster rate per pound of body weight than the average adult. The elderly tend to be at risk because their health is in decline.

To clean indoor air, the Environmental Protection Agency recommends using HEPA filters - high-efficiency particulate air filters. The units require the periodic changing of filters, which is messy and costly. But the EPA prefers them to ionic filter systems, which users simply wipe clean but which give off ozone.

"We recommend that you don't have chemicals in the air, even though ozone does not affect everyone," said Jean Feola, an environmental scientist with the EPA. "People are allergic to different things, and even people with asthma have different triggers."

The problem of recycled air becomes more acute as winter approaches, when windows and doors are left shut.

"Cold air can be a trigger to patients' lung problems," said John Pellicone, medical director at Nyack Hospital. "Yet if you try to seal up the house too tight, you get that stagnant air. So you are in a bind as to how to keep the cold air out yet keep fresh air circulating."

Although homeowners do not want to waste heat - especially with rising fuel costs - Pellicone said windows should be opened for a short time to allow air to circulate.

Taking indoor air's healthfulness for granted could lead to a litany of problems. Dave Martin of the American Lung Association of New York warned that indoor-air pollutants can cause asthma attacks, sneezing, itchy eyes, runny noses and other ailments.

"The quality of indoor air is something that everyone should be concerned about," Martin said. "You spend 90 percent of your time indoors, and the home can contribute more to lung problems than the outdoors."

Respiratory problems may be triggered by simply trying to keep the home and the air clean, particularly during winter. Liquid chlorine bleaches and ammonia-based products can be very noxious to the lungs if used in an area that is not well-ventilated.

And even if furniture waxes, detergents or air deodorizers carry a pleasant fragrance, they are contributing pollutants to the air that can harm sensitive lungs. "Those pollutants are all bombarding the walls of the bronchial tubes, and our lungs are reacting," Dozor said.

Improper maintenance of a home, such as a flue that needs cleaning or leaky pipes, also can lead to air-quality problems.

Mold, triggered by leaking pipes, can grow behind walls and under carpets, where it is unseen but still damaging to lungs. That occurred earlier this year in the Croton-on-Hudson home of Elise Yates, exacerbating the asthma that plagues her and her 11-year-old son, Michael. A pipe broke in the attic, she said, dripping water down a bedroom and bathroom wall and onto the garage ceiling.

"Michael and I were not feeling well at all," said Yates, a yoga teacher. "I had a chronic cough, and whenever I had a cleaning service here, Michael would get a massive headache from the chemicals."

They didn't realize the problem until the garage ceiling fell in and they found mold on the walls and insulation.

"We couldn't go near it," Yates said. "Our eyes were on fire. We had to live in the Tarrytown Hilton for three months."

Yates also got rid of most of her chemical cleansers, replacing them with organic cleaning products obtained from health-food stores.

Rockland County homeowners frequently find mold in their basements.

Soil in the county is very compact, said Carl Dornbush of the county Health Department, and often saturated with groundwater.

"It has a tendency to want to come into the basement," Dornbush said, "and all those family treasures we store in cardboard boxes down there get wet. It's a great reservoir for mold."

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More information

For more information on indoor air-quality issues, contact:

* Westchester County Health Department.

www.westchestergov.com/health/airquality.

914-813-5000.

* Rockland County Health Department.

Division of Environmental Health, 845-364-2609.

* Putnam County Health Department.

Lisa Seymour, indoor air-quality program supervisor, 845-278-6130, Ext. 2162.

* State Department of Health.

www.health.state.ny.us/nysdoh/indoor/indoor.htm.

800-458-1158.

* New York State Energy Research and Development Authority.

www.nyserda.org/iaq.pdf.

* U.S. Environmental Protection Agency.

www.epa.gov/iaq.

800-438-4318 or 703-356-4020.

More information

* U.S. Consumer Product Safety Commission.

www.cpsc.gov/CPSCPUB/PUBS/iaq.html.

800-638-2772.

* Consumers Union, publisher of Consumer Reports.

www.consumer.org.

914-378-2000.

* National Hispanic Indoor Air Quality Helpline/National Alliance for Hispanic Health

www.hispanichealth.org.

800-725-8312.

* American Lung Association

www.alaw.org/air_quality/indoor_air_quality/