New York State Children's Environmental Health Centers

PEHSU Pediatric Environmental Health Specialty Unit Region 2: NJ | NY | PR | USVI

HOW TO RESPOND TO PATIENTS' AND PARENTS' CONCERNS ABOUT MOLD EXPOSURE

A Guide for Clinicians from Environmental Pediatricians

KEY POINTS

1. The most common health effects of mold exposure are allergy symptoms, and asthma exacerbations in children with asthma.
2. Tests for mold "toxins" are not validated or recommended; children with allergies or asthma, however, may benefit from testing for environmental allergies.
3. The most important "treatment" is removing mold from the home environment. Alternative treatments or detoxifications should be avoided. Children with asthma or allergies should be treated for symptoms in addition to removing mold from the home.
4. Families should be counseled about the importance of safely and effectively fixing the mold and underlying water problems.

WHAT IS MOLD?

Mold (type of "fungus") is widely found outdoors and can grow indoors in damp or water-damaged areas.

- Mold is a common type of fungus. Fungi include a large group of organisms that are a natural part of the environment and grow in wet, dark places (such as near lakes or forests). **There are almost always some mold spores in the air, even in cities**.
- **Mold can grow inside buildings with water damage or high humidity.** Mold usually has a musty odor. Mold growing on walls, furniture, and carpet may lead to discolored patches or have a speckled, cottony appearance.
- There are hundreds of species of mold. Some of the most common species that can grow indoors include *aspergillus, penicillium, alternaria, and cladosporium*.

WHAT ARE EVIDENCE-BASED HEALTH EFFECTS OF MOLD EXPOSURE?

The most common health effects of mold exposure are allergy symptoms, and asthma exacerbations in people with asthma who are allergic/sensitive to mold.

- The most common symptoms from exposure to mold spores are **allergy symptoms** such as sneezing, rhinorrhea, cough, rash, and itchiness of the nose, throat, or eyes.
- Mold exposure can trigger an **asthma exacerbation** in people with asthma who are sensitive to mold.
- Some individuals may experience non-allergic irritant effects of the eyes and the mucosa of the upper and lower respiratory tract.
- Immunocompromised patients are at risk for invasive mold infection.

- There are several hypersensitivity disorders to mold, such as allergic bronchopulmonary aspergillosis (ABPA) in patients with underlying lung disease (e.g., cystic fibrosis). Workers, such as farmers, with high levels of occupational exposure to airborne mold may develop hypersensitivity pneumonitis (HP). Generally healthy people are at much lower risk for these disorders, especially from common mold exposures in the home.

HOW CAN I RESPOND TO CONCERNS ABOUT "TOXIC BLACK MOLD"?

Many types of mold make mycotoxins, but the presence of these molds in the home does not mean they will make people sick.

- Many species of mold, including *stachybotrys* (also referred to as "black mold" or "toxic mold" by the media), can make mycotoxins under certain environmental conditions. Mycotoxins are not released into the air (they tend to "stick" to the mold) and are unlikely to pose a health risk to people who live in a home contaminated with *stachybotrys*.
- Many molds look similar to *stachybotrys*. **The presence of any species of mold indicates a need to find the source of the underlying water problem and take action to safely fix it.**
- There is **no evidence** to prove that household exposure to mycotoxins causes conditions such as chronic obstructive pulmonary disease, chronic fatigue, or memory loss.
- There is little evidence to show that health effects can occur from inhalation of mycotoxins in non-occupational settings. Mycotoxins from *stachybotrys* have been associated with some cases of infantile pulmonary hemorrhage, but studies of this association are limited.
- Mycotoxins (e.g., aflatoxin) can contaminate moldy crops such as grains. When people (e.g. farmers) eat or inhale contaminated crops in large amounts, they can develop health effects; these problems are rare.

ARE THERE EVIDENCE-BASED TESTS FOR MOLD EXPOSURE?

Tests for mold "toxins" are not validated or recommended; children with allergies or asthma, however, may benefit from testing for environmental allergies.

- If a child has allergies or asthma and you suspect that mold exposure is related to their symptoms, referral to an allergist may be indicated to test for **environmental aeroallergens**. It is important to conduct a full environmental allergy panel because other common allergens, such as dust mites and pests, often coexist with mold in damp environments.
- Allergy testing may include skin or blood tests (for mold-specific IgE). Although these tests are helpful in management, skin testing reagents are not available for all types of mold, and standardization of reagents may vary. The severity of symptoms may not correlate with test results: the likelihood of clinical reactivity is influenced by the degree of positivity, the allergen in question, and the patient's clinical history.
- Several tests advertised for mold and mycotoxins are **not recommended** by our practice. Examples include urine mycotoxin sampling, serum antibodies to mycotoxins, and fungus-specific IgA and IgM. **These tests are not validated for clinical use**.
- IgE is the only validated immunoglobulin test for mold sensitivity. However, in rare cases when there is suspicion of hypersensitivity pneumonitis, IgG levels to mold (and other sensitizers) may be warranted.
- Some families have already obtained tests for urinary mycotoxins from an online lab. These tests are not clinically validated, and it is unclear what levels are linked to health effects. Since mold is so common in our environment (airborne, food supply), many healthy people can have mycotoxins in their urine.

WHAT ARE EVIDENCE-BASED TREATMENTS FOR MOLD EXPOSURE?

The most important "treatment" is removing the mold; alternative treatments or detoxifications should be avoided. Children with asthma or allergies should be treated for their symptoms in addition to removing the mold from their environment.

- **The most important "treatment" for mold exposure is removing the mold and the source of water damage from the child's environment.**
- **Advise patients not to use products that claim to be alternative treatments or detoxifications for mold or mycotoxin exposure.** These treatments are not scientifically proven, may have serious health risks, and are not recommended by physicians who base their practice in scientific evidence.
- For children with **allergies or asthma**, routine medical treatment is recommended in addition to reducing exposure to environmental triggers.
- Children who are **immunosuppressed** are at risk for serious fungal infections that will need careful medical treatment. People with normal immune systems are not usually at risk for serious fungal infections. There is no evidence to support systemic treatment with antifungal agents in healthy people with mold exposure.

PARENTS ARE WORRIED THAT THERE IS MOLD IN THEIR HOME. SHOULD THEY TEST THEIR HOME?

If mold or water damage is seen or smelled, that is enough evidence to take action to safely remove the mold and fix the underlying water problem.

- **Environmental mold testing (e.g., air testing for spore levels) is generally not necessary if a musty odor, water damage, or visible mold is present--**that information alone is enough to remediate.
- **Mold spore levels alone do not provide information that helps to measure health risks from mold exposure.** There are no established guidelines for acceptable levels of mold spores in indoor environments. **The bottom line is that if mold is identified, it should be fixed.**
- **If testing has been done** and shows that the indoor mold spore level is higher than the outdoor level measured at the same time, this confirms that a source of mold is growing inside the home and should be fixed. This mold is most often visible.
- In some cases, it may be useful for families to hire a professional to perform a thorough inspection to find the source of water leaks. The professional can also use a moisture meter to determine if walls are too damp and may lead to mold growth. Wall moisture should ideally be <15%.

HOW CAN I ADVISE FAMILIES ABOUT FIXING MOLD IN THEIR HOME?

The key is safe, swift, and effective remediation paired with controlling indoor humidity levels and fixing water leaks in the home.

- If a family notices a musty odor, water damage, or visible mold, **then they have enough evidence for remediation.** Families should inspect the entire home to assess the full extent of mold growth and/or water damage. Photographs may be useful to help communicate the need for repair to others.
- **Look out!** Older homes with water damage are likely to have other possible risks such as lead paint, dust mites, or pests. These problems should be dealt with safely and effectively (see links below).
- **Renters in New York City (NYC):** After identifying mold or water damage, families should contact their **building manager or superintendent** to conduct a visual inspection to identify the underlying source of

moisture (such as water leaks). **If the landlord does not promptly address the mold or water damage problems, advise families to call 311.**

- **Families with asthma may qualify for home-based asthma intervention** by AirNYC, LSA Family Health Services, or NY Department of Health (see resources on last page).

- Provide families with information about how to do remediation safely and effectively, following best practice guidelines from the NYC Department of Health**:**
  www1.nyc.gov/assets/doh/downloads/pdf/epi/epi-mold-guidelines.pdf
    - **Area of water damage or mold growth <u>less than 10 square feet</u>**: Very often families can address small amounts of mold by cleaning with soap/detergent and water. Bleach is not recommended, unless disinfection is needed after a sewage leak (use no more than 1 cup of bleach mixed in 1 gallon of water). We also recommend the proper use of gloves, eye protection, and respiratory protection, making every effort to avoid the spread of mold. Children and those with underlying respiratory issues should not do the cleaning or be present when the cleaning is taking place.
    - **Area of water damage or mold growth <u>greater than 10 square feet</u>** (e.g., on multiple walls within a single room): the homeowner or landlord should hire a licensed contractor who uses proper protective equipment and specialized methods. If there is lead-based paint in the building, any remediation work should be done by "Lead Safe Certified" contractors.

<u>HOW CAN I COUNSEL FAMILIES ABOUT PREVENTING MOLD GROWTH IN THEIR HOMES?</u>

The key to preventing mold in the home is to control indoor humidity levels and fix water leak problems .

- **The bottom line: The presence of mold means there is too much moisture is the air.** Fixing leaks, drying damp areas, and removing humidity from the air will stop mold growth.

- **How can families start this process?** Mold usually grows in damp places, such as bathrooms, kitchens and basements. Families should periodically visually inspect these areas for dampness, water leak spots, and mildew to identify moisture problems before they become serious. Water leaks or areas of water damage should be fixed quickly to avoid mold growth.

- **Provide guidance to families on simple steps to improve indoor air quality in the home:**
    - Increase ventilation by opening windows and circulating outdoor air
    - Open the window while taking a shower in bathrooms with no exhaust ventilation
    - Use exhaust fans in the kitchen when cooking
    - Consider using a dehumidifier in the basement
    - Do wet mopping and wet dusting of surfaces on regular basis

<u>WHAT CAN I RECOMMEND TO PARENTS CONCERNED ABOUT MOLD FOUND IN THEIR CHILD'S SCHOOL?</u>

Resources are available to assist schools in addressing indoor air quality issues such as mold.

- **The *Indoor Air Quality (IAQ) Tools for Schools* program has guidelines for safe and effective prevention of mold and other hazards in schools.** Encourage parents to share this resource with the school's administration and encourage them to implement its recommended practices: www.epa.gov/iaq-schools

- **The NYS Department of Health** has "Clean, Green, & Healthy Schools" , a free pilot program to create safer and healthier learning environments by addressing indoor air quality and other environmental health issues: www.health.ny.gov/environmental/indoors/healthy_schools/index.htm

ADDITIONAL RESOURCES FOR FAMILIES:

NYC DOH Guidelines for Safe and Effective Mold Remediation:
www1.nyc.gov/assets/doh/downloads/pdf/epi/epi-mold-guidelines.pdf

Environmental Protection Agency (EPA): www.epa.gov/mold

Centers for Disease Control and Prevention (CDC): www.cdc.gov/mold

Pediatric Environmental Health Specialty Units (PEHSU): www.pehsu.net

NY Children's Environmental Health Centers: www.nyscheck.org

American Academy of Pediatrics (AAP) - information on asthma and allergies:
www.healthychildren.org/English/health-issues/conditions/allergies-asthma/Pages/default.aspx

ADDITIONAL RESOURCES FOR CLINICIANS:

PEHSU
Pediatric Environmental Health Specialty Unit
Region 2: NJ | NY | PR | USVI

Contact the Region 2 **Pediatric Environmental Health Specialty Unit** (PEHSU) for a consultation with an environmental pediatrician:
https://icahn.mssm.edu/research/pehsu
Tel: 1-866-265-6201 Email: PEHSU@mssm.edu

Icahn School of Medicine at Mount Sinai

Refer your patient to the **Environmental Pediatrics Clinic** at Mount Sinai:
https://icahn.mssm.edu/environmentalpeds
Tel: 1-866-265-6201 Email: PEHSU@mssm.edu

In-home Asthma Interventions

NYC Families: www.air-nyc.org

East Harlem Families: https://littlesistersfamily.org/

Select communities throughout NY State- NYS Department of Health's Healthy Neighborhoods program:
www.health.ny.gov/environmental/indoors/healthy_neighborhoods/

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