

MOLD AND MOISTURE

PROBLEM STATEMENT

Many molds produce numerous protein or glycoprotein allergens capable of causing allergic reactions in people. These allergens have been measured in spores as well as in other fungal fragments. An estimated 6%-10% of the general population and 15%-50% of those who are genetically susceptible are sensitized to mold allergens. Fifty percent of the 937 children tested in a large multi-city asthma study sponsored by the National Institutes of Health showed sensitivity to mold, indicating the importance of mold as an asthma trigger among these children. Molds are thought to play a role in asthma in several ways. Molds produce many potentially allergenic compounds, and molds may play a role in asthma via release of irritants. *Source: Healthy Housing Inspection Manual*

BACKGROUND

Molds are part of the natural environment. Outdoors, mold plays a part in nature by breaking down dead organic matter such as fallen leaves and dead trees, but indoors, mold growth should be avoided. Molds reproduce by means of the spores; the spores are invisible to the naked eye and float through the outdoor and indoor air. Mold may begin growing indoors when the mold spores land on surfaces that are wet.

Mold has the potential to cause health problems inhaling or touching mold or mold spores may cause an allergic reaction in sensitive people and can cause sneezing, red eyes, skin rashes. Mold can develop in water-damaged materials e.g. carpet and upholstered furniture. Removing wet carpet and furniture and replacing it is best. Also, if possible, use large fans to dry out the wallboard and flooring.

It is important to look for moisture in the home, because mold needs water in order to grow.

- Condensation on windows and walls is a sign of high moisture levels.
- Common sources of moisture in homes include:
 - Plumbing leaks (such as under kitchen sink or in bathroom). If the wallboard is mildly damaged with water, it is best to replace it.
 - Bathrooms and kitchens without adequate ventilation
 - Vapor from showering and cooking
 - Dryers not vented to the outside
 - Leaks in the roof, walls or windows
 - Dampness from crawl spaces or basements

- If the kitchen or a bathroom does not have a fan or a window, an exhaust fan should be installed.
 - If possible, the fan should have a relative humidity rheostat switch, which is a switch that turns on the fan when the humidity goes above a set level or have the fan set to a timer switch.
 - Timers can be used with bathroom fans but not with kitchen fans.
 - Another option for bathroom fans is to use a fan that is always on at a low and quiet flow rate.
 - If no fan is available, open the window when showering or cooking
- To further reduce moisture allowed into the home, a vapor barrier should cover the entire crawl space.
 - Crawl spaces should be ventilated.
 - Repair any leaks and vent the dryer to the outside
 - Any holes between the crawl space and home should be plugged (using steel wool and Easyfoam).
- A concrete floor can pick up water from the dirt beneath it. If the floor is to be covered with carpeting, a vapor barrier (non-porous plastic sheeting) should be placed between the carpet and concrete to prevent moisture from entering the carpet, making the carpet damp and encouraging mold growth. It is preferable to paint the concrete floor and use area rugs.)

ASSESSMENT

The Home Environmental Checklist (HEC) detects five key signs of moisture-related problems:

- 1) Condensation 2) ventilation issues 3) mold 4) water leaks and 5) water damage.
- Assess prior education received by client and client's knowledge.
 - Conduct the remainder of the protocol, both to address existing moisture and to avoid future problems.
 - Assess the caregiver's readiness to approach ventilation and moisture management.

EDUCATIONAL MESSAGES

- Excessive moisture and humidity can cause problems for children with asthma by helping mold, dust mites and cockroaches grow and multiply.
- Exposure to some molds, dust mites and roaches can cause asthma or can trigger asthma attacks.
- There are simple things that you can do to reduce the moisture level in your home.

ACTIONS

CHW Actions	Patient Actions
• Work with the caregiver to help them take actions needed to reduce moisture in the home. • To improve ventilation, advise the caregiver that opening painted-shut windows would be helpful. If the house was built before 1978, lead paint will be present. If this is the case, give the caregiver the handout on safely working when lead paint is present. • Healthy humidity is between 30-50%. Share the humidity reading with the caregiver and if higher than 50% stress the need for improving ventilation. Even if humidity is at a healthy level at the time of the visit, stress the need to keep moisture under control at all times. • Help the caregiver identify and remove water-damaged objects. • Demonstrate how to mix up Murphy's Oil Soap solution, Simple Green or any other unscented detergent and how to clean up mold on surfaces and in window tracks. • If the patient is a tenant: ▪ Identify actions that the landlord should take, such as the installation of fans, venting of dryers to the outside, removal of	• Use available ventilation, such as fans and open windows, especially when cooking or showering. Keep fans on and windows open for the duration of the shower and for the same amount of time after your shower. If your shower was 20 minutes then keep the bathroom fan on for 40 minutes total (20 minutes during the shower and 20 minutes after). 15-30 minutes after you are done. • Keep shower curtain or bathtub sliding door open after bathing to increase air circulation. • If the kitchen or a bathroom does not have a fan that vents outside, one should be installed. • Clothes dryer should be vented to the outside, not into the attic or crawl space. The exterior vent should be screened. • Open all windows for 3 to 5 minutes to ventilate the home and remove stale air without cooling down the house. This should be done in the morning and the evening, if possible. • Discontinue the use of humidifiers in all rooms, especially in the child's bedroom.

water-damaged carpet, the installation of a vapor barrier under all carpet placed over a cement floor, and the installation of a vapor barrier in crawl spaces. ▪ Discuss with the caregiver the best way to approach the landlord. (Use home repair request sheet with turnaround times. Assist with wording of request, if needed, provide repair request copies in both English and family/individual participant's language so they can keep it on hand for future requests. • If the patient is a homeowner: ▪ Make the same changes as recommended for the landlord. Future Visits • Assess if the caregiver has been able to perform needed actions. Address problems by giving assistance on a case by case basis. • If flooding or a leak dampens the carpet or other fabric, help the caregiver dry out those items. Air blowers may need to be rented for difficult situations. In such cases, consult with the project manager to make necessary arrangements.	• In instances where a child's bedroom has moderate to severe mold growth that cannot be controlled, move the child to another room. • If this is not possible, a room air filter (HEPA) can be used and left on all of the time, with the door to the room closed. • Heat rooms to a minimum of 65° during the heating season. Try to keep all rooms within 2-3 degrees of each other. • In cases of mild mold, clean the site weekly with Murphy's Oil Soap solution, Simple Green or other non-scented detergent. To make a solution for cleaning up mold, mix: ▪ Murphy's Oil Soap/other detergent ▪ 4 cups of water • Wear gloves when cleaning, and ventilate the area by opening the windows and turning on fans. ▪ If there are on fans or windows in the area, keep the doors open and open other windows in the home. • After cleaning, let the solution that is left on the surface air dry. Do not rinse with plain water after cleaning with the Murphy's Oil Soap or detergent solution. • If you have a flooding problem or leak and carpet or other fabric gets wet, dry out immediately and call your outreach worker right away for help.
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	• Remove moldy or water-damaged materials and objects from the home, such as fabric-covered furnishings. • If you are a tenant: ▪ Identify actions that the landlord should take, such as the installation of fans, venting of dryers to the outside, removal of water-damaged carpet, the installation of a vapor barrier under all carpet placed over a cement floor, and the installation of a vapor barrier in crawl spaces. ▪ If mold is moderate to severe, work with the landlord (a Public Health Environmental Inspector may be able to help you) to have this fixed. • Homeowners should prioritize the above projects that they may wish to undertake. Follow-up Visits Cleaning mild CASES OF mold and mildew: cleanable surfaces: • Wash with a detergent, Simple Green or Murphy's Oil Soap solution as described above. Mattresses: mild cases of mold and mildew: • Wipe down the mattress with the above mixture, let dry and then encase the mattress in a zippered allergy control mattress cover. Window frame tracks: mild cases of mold and mildew: • Use a "toothbrush" or grout brush to scrub as much mildew from the tracks as possible. • Then use a scraper or butter knife to push a cloth into the track and move it back and forth.
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	• Use a spray cleaner (Murphy’s oil soap) to help flush the loosened “stuff” out. Be sure the tracks don’t overflow onto the wall. • Most windows have small drainage holes to the outer side, which often get clogged. Try to unclog the drain holes with a pin. • After cleaning, apply a layer of the Murphy’s Oil Soap solution and let it dry there to help keep the mold from coming back. • Clean bathroom, kitchen, or other surfaces at risk for mold growth (such as surfaces where mold has been removed or those that are damp) weekly with Murphy’s Oil Soap-detergent solution. This can prevent mold problems from starting or returning. Flooded ceilings or carpets? floors, walls and other items: • Immediately dry all wet objects. • Dry carpet by lifting it off of the floor and drying the underlying surface if possible. • Turn up the heat in the room. If possible, use air blowers to circulate air until all dampness is gone. Note that air has to go outside or things don’t dry. Open windows or a door for proper drying results. • Work with your landlord to have a hard surface floor installed (this is best) or to replace water-damaged carpeting if the carpet has not dried out within 48 hours. • If items stay wet for more than 48 hours, water damage is probable. Get rid of all moldy and water damaged materials from the home, especially carpeting and fabric-covered furnishings.
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SUPPLIES

- Green Kit

EDUCATION HANDOUTS

- “A Brief Guide to MOLD, MOISTURE, AND YOUR HOME”. US Environmental Protection Agency EPA 402-k-02-0
- [Renters, Landlords, and Mold](#), *Washington State Dept. of Health*
- [Mold Guidance for Tenants and Landlords](#), *Northwest Clean Air Agency*

REFERRALS

- Refer to Public Health - Seattle & King County Environmental Health staff for significant mold problems where:
 - area of mold is greater than 10 sq. ft. (any intensity) **OR**
 - area of mold is greater than 5 sq. ft. but less than 10 sq. ft. and of high (3) intensity
[American Lung Association](#), **Seattle Office:** 2625 3rd Avenue, Seattle, WA 98121, Phone: 206-441-5100
 - [Puget Sound Clean Air Agency](#): 1904 3rd Ave, Seattle, Washington 98101, Phone: 206-343-8800

[Seattle Department of Planning & Development](#): 700 Fifth Ave, Suite 2000, P.O. Box 34019, Seattle, WA 98124-4019; Violation Complaint Line: 206-684-0808