

DUST MITES AND ASTHMA

PROBLEM STATEMENT

In 1921, a link was suggested between asthmatic symptoms and house dust, but it was not until 1964 that investigators suggested that a mite could be responsible. Further investigation linked a number of mite species to the allergen response and revealed that humid homes have more mites and, subsequently, more allergens. In addition, researchers established that fecal pellets deposited by the mites accumulated in home fabrics and could become airborne via domestic activities such as vacuuming and dusting, resulting in inhalation by the inhabitants of the home.

BACKGROUND

Dust mites are tiny insects that are invisible to the naked eye. Every home has dust mites. Mites prefer relative humidity levels of 70% to 80% and temperatures of 75° F to 80° F (24° C to 27° C). Most mites are found in bedrooms in bedding, where they spend up to a third of their lives. A typical used mattress may have from 100,000 to 10 million mites in it. In addition, carpeted floors, especially long loose pile carpet, provide a microhabitat for the accumulation of food and moisture for the mite, and also provide protection from removal by vacuuming. They also live in stuffed animals and bedding materials such as quilts and comforters. Freezing stuffed animals kills mites.

The house dust mite's favorite food is human dander (skin flakes), which are shed at a rate of approximately 0.20 ounces per week. Body parts and feces from dust mites can trigger asthma in individuals with allergic reactions to dust mites. Exposure to dust mites can cause asthma in individuals who have not previously exhibited asthma symptoms.

- Mites are best controlled using multiple methods. One important method for controlling mites is to use allergy control covers on mattresses and pillows.
- Washing bedding materials (sheets, pillowcases, blankets) weekly at a temperature of at least 130 degrees will kill dust mites. Many homes will not have water that is this hot.
- Wash bedding at a Laundromat which does have hot water, OR
 - Dry bedding outdoors on sunny days. It is best to lay sheets directly on a hard surface so that mites get hot and dried out, OR
 - Use the hottest water available in the home. This is the least effective method, OR
 - Dry bedding in a hot dryer for 30 minutes.
- Mites get their water from the moisture in the air so dust mites grow best in moist, humid places.
- HEPA vacuums are effective in removing dust and allergens. A conventional vacuum tends to be inefficient as a control measure and results in a significant increase in airborne dust concentrations, but can be used with multilayer microfiltration collection bags. Another approach to mite control is

reducing indoor humidity to below 50%. Bedding encasements (pillow & mattress) when used in conjunction with other control measures are helpful. Dry steam cleaning also reduces mite allergen levels.

ASSESSMENT

- Assess prior education received by client and client's knowledge.
- Assess for presence of allergy control covers on mattress and pillow. Check to see if there are any problems with mattress cover.

EDUCATIONAL MESSAGES

- Dust mites are the most important indoor cause of allergies that can trigger asthma.
- Almost 2 out of 3 children with asthma (in Healthy Homes –I) were allergic to dust mites.
- Getting rid of dust mites can be a big help in controlling asthma for people who are allergic to mites. In some cases, getting rid of mites can eliminate all asthma symptoms.
- Dust mites are found in every home in our area, no matter how clean the house.
- There are multiple methods for controlling dust mites. They include: washing bedding, covers, keeping humidity below 50% in the house and vacuuming.

ACTIONS

CHW ACTIONS	CAREGIVER ACTIONS
<ul style="list-style-type: none"> • Show how to clean off allergy control covers with sponge or damp cloth, or instruct how to vacuum the covers for the once a month cleaning. • Review moisture control protocol as needed. 	<ul style="list-style-type: none"> • Put allergy control covers on the mattress & pillow if not already present. • The allergy covers should be wiped off with a damp (not wet) cloth or vacuumed using the hard-edged attachment tool once a month. • Wash bedding materials (sheets, pillowcases, and blankets) weekly in hot (130°) water. Return the temperature back to a safe 120° after washing bedding <u>or</u> dry bedding materials in the dryer using the HOT cycle for at least 30 minutes.. • Dust child's bedroom twice a week. • Vacuum carpet or damp-mop hard floor in the child's bedroom twice a week.

	<ul style="list-style-type: none"> • Remove upholstered furniture from the child's bedroom. Replace with wood, vinyl or leather furniture. • If unable to change furniture, then vacuum upholstered furniture weekly. • Avoid sleeping or lying on upholstered furniture or carpets. • Reduce indoor humidity to between 30 and 50 percent. • Remove carpets from the bedroom. Remove from the home carpets that are laid on concrete. Before taking up the carpet, check the condition of the underlying floor by lifting up a corner of the carpet. (If you are a tenant, check with the landlord/manager first before doing so if you feel it is reasonable to approach the landlord manager.) • In children's beds, minimize the number of stuffed toys, and wash them weekly. (Freezing stuffed toys also works.) <p>Recommended Client Actions: Lower priority</p> <ul style="list-style-type: none"> • Use fleece or other easily washable blankets to replace blankets/quilts/duvets that trap dust and are more difficult to wash. • Wash covers only once a year or if soiled. • Remove cloth-drapes, curtains and other window treatments from the child's bedroom and use plastic or vinyl roller shades or blinds instead. • If unable to remove drapes, vacuum them weekly. • Store cleaned sheets in plastic bags to keep them from getting dusty.
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FOLLOW-UP VISITS

SUPPLIES

- Allergen control mattress & pillow covers

EDUCATION HANDOUTS

- Clear Your Home of Asthma Triggers” Environmental Protection Agency; EPA/402-F-99-005 (English and Spanish)

REFERRALS

- None