

ASTHMA HOME ENVIRONMENT

C H E C K L I S T

Home visits provide an opportunity to educate and equip asthma patients with the tools to effectively manage their disease in concert with a physician's care. This checklist—designed for home care visitors—provides a list of questions and action steps to assist in the identification and mitigation of environmental asthma triggers commonly found in and around the home. The checklist is organized into three sections—building information, home interior and room interior. The room interior is further subdivided by categories (such as bedding and sleeping arrangements, flooring, window treatments, and moisture control). This will allow the home care visitor to focus on the specific activities or things in a room—in particular the asthma patient's sleeping area—that might produce or harbor environmental triggers. The activities recommended in this checklist are generally simple and low cost. Information on outdoor air pollution follows the checklist. The last page includes information on U.S. Environmental Protection Agency (EPA) resources and an area for the home care visitor to record a home visit summary.

If the patient's sensitivities to allergens (such as dust mites, pests, warm-blooded pets and mold) and irritants (such as secondhand smoke and nitrogen dioxide) are known, the home care visitor should begin by focusing on relevant areas. This checklist covers the following allergens and irritants, which are commonly found in homes. Information is also provided on chemical irritants—found in some scented and unscented consumer products—which may worsen asthma symptoms.

Dust Mites

Triggers: Body parts and droppings.
Where Found: Highest levels found in mattresses and bedding. Also found in carpeting, curtains and draperies, upholstered furniture, and stuffed toys. Dust mites are too small to be seen with the naked eye and are found in almost every home.

Pests (such as cockroaches and rodents)

Triggers: Cockroaches – Body parts, secretions, and droppings.
Rodents – Hair, skin flakes, urine, and saliva.
Where Found: Often found in areas with food and water such as kitchens, bathrooms, and basements.

Warm-Blooded Pets (such as cats and dogs)

Triggers: Skin flakes, urine, and saliva.
Where Found: Throughout entire house, if allowed inside.

Mold

Triggers: Mold and mold spores which may begin growing indoors when they land on damp or wet surfaces.
Where Found: Often found in areas with excess moisture such as kitchens, bathrooms, and basements. There are many types of mold and they can be found in any climate.

Secondhand Smoke

Trigger: Secondhand smoke – Mixture of smoke from the burning end of a cigarette, pipe or cigar and the smoke exhaled by a smoker.
Where Found: Home or car where smoking is allowed.

Nitrogen Dioxide (combustion by-product)

Trigger: Nitrogen dioxide – An odorless gas that can irritate your eyes, nose, and throat and may cause shortness of breath.
Where Found: Associated with gas cooking appliances, fireplaces, woodstoves, and unvented kerosene and gas space heaters.

BUILDING INFORMATION

(This information may be helpful to determine reasonable mitigations.)

What type of building does the patient live in? House
 Duplex
 Apartment
 Mobile home
 Other _____

Notes:

Does the patient own or rent? Own
 Rent

Notes:

Questions	Answers	Action Steps
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HOME INTERIOR

▲ **MAY REQUIRE ADDITIONAL TIME AND/OR RESOURCES.**

Secondhand Smoke

Does anyone smoke in the home or car?	<input type="checkbox"/> Y <input type="checkbox"/> N	<ul style="list-style-type: none"> Keep the home and car smoke-free. Do not allow visitors to smoke in the home. Take the smoke-free home pledge and post a smoke-free home decal or magnet to show that the house is a "smoke-free" zone.
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Notes:

Warm-blooded Pets (such as cats and dogs)

Is the patient's asthma worse when around warm-blooded pets?	<input type="checkbox"/> Y <input type="checkbox"/> N	<ul style="list-style-type: none"> If possible, remove the pet from the home or keep the pet outside. If this is not possible, keep the pet out of the patient's sleeping area and off of the furniture.
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Notes:

Consumer Products

Is the patient's asthma worse when around chemicals or products with strong odors (such as cleaners, paints, adhesives, pesticides, air fresheners, or cosmetics)?	<input type="checkbox"/> Y <input type="checkbox"/> N	<ul style="list-style-type: none"> Limit patient's exposure as much as possible by minimizing product use, using products only when patient is not present, or trying alternative products. If products are used, carefully follow manufacturer's instructions on the label and make sure the area is well ventilated.
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Notes:

Heating and Cooling Systems

Does the heating and cooling system use filters?	<input type="checkbox"/> Y <input type="checkbox"/> N	<ul style="list-style-type: none"> If so, replace the filters quarterly. Use filters with higher efficiency than standard furnace filters, such as upgraded pleated filters, if heating or cooling system manufacturer's specifications allow.
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Notes:

Questions	Questions Answers	Action Steps
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HOME INTERIOR (continued)

▲ **MAY REQUIRE ADDITIONAL TIME AND/OR RESOURCES.**

Does the heating system use a fuel-burning appliance (such as an oil or gas furnace)? Y N

- ▲ Have the heating system - including furnaces, flues and chimneys - professionally inspected annually.
- ▲ Promptly repair cracks or damaged parts.

Notes:

Are supplemental heating sources used? (Check all that apply)

Fireplace
 Wood-burning stove
 Unvented kerosene or gas space heater
 Other _____

- Properly ventilate the room where a fuel-burning appliance is used. Consider using appliances that vent to the outside whenever possible.
- Never use a gas-cooking appliance as a heating source.
- If using a fireplace, make sure it is properly vented to help ensure smoke escapes through the chimney.
- If using a wood-burning stove, make sure that doors are tight-fitting. Use aged or cured wood only and follow the manufacturer's instructions for starting, stoking, and putting out the fire.
- If using an unvented kerosene or gas space heater, follow the manufacturer's instructions for proper fuel to use and keep the heater properly adjusted.

Notes:

Are there air conditioning window units? Y N

- Run window air conditioner with the vent control open to increase the outdoor ventilation rate during the cooling season.

Notes:

ROOM INTERIOR

Bedding and Sleeping Arrangements

What does the patient sleep on? (Check all that apply)

Mattress with box springs
 Sofa
 Other _____

- ▲ Cover patient's mattress in a dust-proof (allergen impermeable) zippered cover. Clean cover according to manufacturer's instructions.
- If it is necessary for the patient to sleep on upholstered furniture such as a sofa, then cover furniture with washable slipcovers or sheets and vacuum furniture regularly (including removing cushions and vacuuming in cracks and crevices).

Notes:

What types of bedding does the patient use? (Check all that apply)

Bedspread (e.g., comforter, quilt)
 Blankets
 Pillows
 Sheets
 Other (e.g., sleeping bag) _____

- Choose washable bedding.
- Wash bedding regularly in hot water and dry completely.
- ▲ Cover patient's pillow in a dust-proof (allergen impermeable) zippered cover. Clean cover according to manufacturer's instructions.

Notes:

Questions	Answers	Action Steps
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ROOM INTERIOR (continued)

▲ **MAY REQUIRE ADDITIONAL TIME AND/OR RESOURCES.**

Flooring

What type of floor covering is present?
(Check all that apply)

- Carpeting
- Hardwood floor, tile, or vinyl flooring
- Throw rugs
- Other _____

- If carpeting is present, vacuum carpets, area rugs, and floors regularly.
- If possible, use a vacuum cleaner with a high efficiency filter.
- Mop hard surface floors regularly.
- Wash throw rugs regularly in hot water. Dry completely.
- Clean baseboards regularly using a damp cloth with warm, soapy water.
- Someone besides the patient should vacuum, sweep, empty the dust canister and change the vacuum bag.
- If possible, the patient should stay out of rooms when they are being vacuumed or swept.
- If the patient vacuums, sweeps, empties the dust canister, or changes the vacuum bag, he or she should wear a dust mask.

Notes:

Upholstered Furniture and Stuffed Toys

Is there upholstered furniture present?

- Y
- N

- Cover upholstered furniture with washable slipcovers or sheets.
- Vacuum upholstered furniture regularly, including removing cushions and vacuuming in cracks and crevices.
- ▲ If replacing furniture, consider purchasing a non-upholstered furniture - such as vinyl, wood, or leather - that can be easily wiped down.

Notes:

Are stuffed toys present?

- Y
- N

- Choose washable stuffed toys, and wash frequently in hot water. Dry completely.
- Limit the number of stuffed toys in patient's bed and sleeping area.

Notes:

Window Treatments

What window coverings are present?
(Check all that apply)

- Curtains or drapes
- Blinds
- Shades
- Other _____

- Vacuum drapes regularly.
- Wash and dry curtains regularly.
- Dust window sills, blinds, and shades regularly using a damp cloth with warm, soapy water. Dry completely.
- ▲ If possible, replace curtains or drapes with plastic, vinyl, wood, or aluminum blinds.

Notes:

Cooking Appliances

Are gas cooking appliances used?

- Y
- N

- When cooking with a gas appliance, turn on an exhaust fan or open a window.
- Avoid misuse of the appliance by following the manufacturer's instructions for operation.

Notes:

Questions	Answers	Action Steps
ROOM INTERIOR (continued)		▲ MAY REQUIRE ADDITIONAL TIME AND/OR RESOURCES.
Moisture Control		
Is there evidence of water damage, moisture, or leaks (such as damp carpet or leaky plumbing)?	<input type="checkbox"/> Y <input type="checkbox"/> N	<ul style="list-style-type: none"> ■ Dry damp or wet items within 24-48 hours to avoid mold growth. ▲ Fix water leaks (such as leaky plumbing) as soon as possible. ▲ Replace absorbent materials, such as ceiling tiles and carpet, if mold is present. ▲ Use air conditioner or dehumidifier to maintain low indoor humidity. If possible, keep indoor humidity below 60% (ideally between 30-50%) relative humidity.
<i>Notes:</i>		
Do you see or smell mold or mildew (such as in the bathroom on tub, shower, walls, or windows)?	<input type="checkbox"/> Y <input type="checkbox"/> N	<ul style="list-style-type: none"> ■ Open a window or turn on an exhaust fan when there is excessive moisture in the room, such as when showering or cooking. ■ Scrub mold off hard surfaces with detergent and water. Dry completely. ■ Clean up mold and dry surfaces completely before painting or caulking. ▲ Replace absorbent materials, such as ceiling tiles and carpet, if mold is present.
<i>Notes:</i>		
Is standing water present (such as in refrigerator drip pans, air conditioner drip pans, or house plants)?	<input type="checkbox"/> Y <input type="checkbox"/> N	<ul style="list-style-type: none"> ■ Empty and clean refrigerator and air conditioner drip pans regularly. ■ Avoid standing water in plant containers.
<i>Notes:</i>		
Are humidifiers used in the patient's house?	<input type="checkbox"/> Y <input type="checkbox"/> N	<ul style="list-style-type: none"> ■ Use humidifier only when conditions require it, use the correct setting to maintain indoor relative humidity between 30-50 percent, and clean humidifier reservoirs regularly. ■ Use low mineral content water to prevent the build-up of scale and dispersal of minerals into the air. ■ Follow manufacturer's instructions for use, maintenance, and replacement of any materials supplied with the humidifier.
<i>Notes:</i>		
Are rooms and moisture-producing appliances—such as stoves, clothes dryers, or dishwashers—properly vented (including venting to the outside if specified by the manufacturer)?	<input type="checkbox"/> Y <input type="checkbox"/> N	<ul style="list-style-type: none"> ■ Increase ventilation or air movement by opening doors and/or windows when practical. Use fans as needed. ■ Run the bathroom exhaust fan or open the window when showering. ■ Use exhaust fans or open windows whenever cooking or washing dishes. ■ Vent appliances properly according to manufacturer's specifications.
<i>Notes:</i>		

Questions	Answers	Action Steps
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R O O M I N T E R I O R (continued)

▲ **MAY REQUIRE ADDITIONAL TIME AND/OR RESOURCES.**

Pest Control

Is there evidence of cockroaches and/or rodents (such as droppings or dead specimens in traps)? Y N

- Clean all surfaces where you have seen pests.
- Use poison baits, boric acid, or traps to kill pests. Minimize use of sprays. If sprays are used: limit the spray to the infested area, carefully follow the instructions on the label, make sure there is plenty of fresh air where the spray is being used and, if possible, keep patient out of the room.

Notes:

Are there food crumbs or open or unsealed food? Y N

- Clean all food crumbs or spilled liquids right away.
- Store food in sealed containers.
- Remove food, bags, newspapers, and empty boxes, cans, and bottles from the sleeping area.
- Put all garbage in plastic trash bags. Seal trash bags and put them into garbage cans with fitted lids every day.

Notes:

Are there holes or gaps between construction materials and pipes that could allow pests to enter the house? Y N

- Seal holes or gaps between construction materials and pipes, or ask the owner to do so.

Notes:

Is there evidence of standing water or leaks? Y N

- Dry damp or wet items within 24-48 hours to avoid mold growth.
- Avoid standing water in house plant containers and drip pans.
- ▲ Fix water leaks (such as leaky plumbing) as soon as possible.

Notes:

O U T D O O R A I R P O L L U T I O N

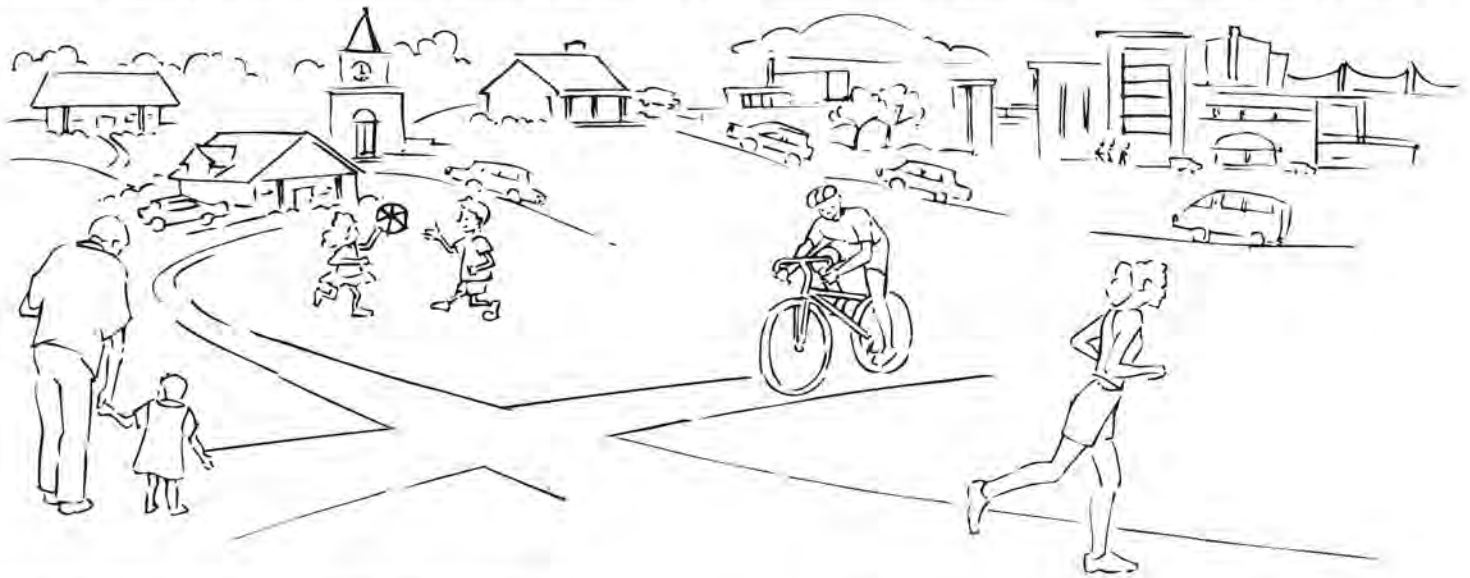
Exposure to air pollution (mainly ozone and particle pollution) can trigger asthma attacks. The Air Quality Index (AQI) is a tool to provide the public with clear and timely information on local air quality and whether air pollution levels pose a possible health concern. The AQI is reported and forecasted every day in many areas throughout the U.S. on local weather reports and through national media. Asthma attacks are most likely to occur the day after outdoor pollution levels are high.

People can take simple steps to reduce their exposure to outdoor air pollution. When the AQI reports unhealthy levels:

- ▶ Limit physical exertion outdoors.
- ▶ Consider changing the time of day of strenuous outdoor activity to avoid the period when air pollution levels are high or consider postponing sports activities to another time.
- ▶ Reduce the intensity of the activity, or spend less time engaged in strenuous activities. For example, coaches can rotate players more frequently in strenuous sports, like soccer. Resting players reduces their exposure to air pollution.

To learn more about and access the AQI, visit www.epa.gov/airnow.

ASTHMA AND OUTDOOR AIR POLLUTION



1 Air pollution can make asthma symptoms worse and trigger attacks.

If you or your child has asthma, have you ever noticed symptoms get worse when the air is polluted? Air pollution can make it harder to breathe. It can also cause other symptoms, like coughing, wheezing, chest discomfort, and a burning feeling in the lungs.

Two key air pollutants can affect asthma. One is *ozone* (found in smog). The other is *particle pollution* (found in haze, smoke, and dust). When ozone and particle pollution are in the air, adults and children with asthma are more likely to have symptoms.

2 You can take steps to help protect your health from air pollution.

► Get to know how sensitive you are to air pollution.

- Notice your asthma symptoms when you are physically active. Do they happen more often when the air is more polluted? If so, you may be sensitive to air pollution.

- Also notice any asthma symptoms that begin up to a day *after* you have been outdoors in polluted air. Air pollution can make you more sensitive to asthma triggers, like mold and dust mites. If you are more sensitive than usual to indoor asthma triggers, it could be due to air pollution outdoors.

► Know when and where air pollution may be bad.

- *Ozone* is often worst on hot summer days, especially in the afternoons and early evenings.
- *Particle pollution* can be bad any time of year, even in winter. It can be especially bad when the weather is calm, allowing air pollution to build up. Particle levels can also be high:
 - Near busy roads, during rush hour, and around factories.
 - When there is smoke in the air from wood stoves, fireplaces, or burning vegetation.

► **Plan activities when and where pollution levels are lower.** Regular exercise is important for staying healthy, especially for people with asthma. By adjusting when and where you exercise, you can lead a healthy lifestyle and help reduce your asthma symptoms when the air is polluted. In summer, plan your most vigorous activities for the morning. Try to exercise away from busy roads or industrial areas. On hot, smoggy days when ozone levels are high, think about exercising indoors.

► **Change your activity level.** When the air is polluted, try to take it easier if you are active outdoors. This will reduce how much pollution you breathe. Even if you can't change your schedule, you might be able to change your activity so it is less intense. For example, go for a walk instead of a jog. Or, spend less time on the activity. For example, jog for 20 minutes instead of 30.

► **Listen to your body.** If you get asthma symptoms when the air is polluted, stop your activity. Find another, less intense activity.

► **Keep your quick-relief medicine on hand when you're active outdoors.** That way, if you do have symptoms, you'll be prepared. This is especially important if you're starting a new activity that is more intense than you are used to.

► **Consult your health care provider.** If you have asthma symptoms when the air is polluted, talk with your health care provider.

- If you will be exercising more than usual, discuss this with your health care provider. Ask whether you should use medicine before you start outdoor activities.

- If you have symptoms during a certain type of activity, ask your health care provider if you should follow an asthma action plan.

3 Get up-to-date information about your local air quality:

Sometimes you can tell that the air is polluted—for example, on a smoggy or hazy day. But often you can't. In many areas, you can find air quality forecasts and reports on local TV or radio. These reports use the Air Quality Index, or AQI, a simple color scale, to tell you how clean or polluted the air is. You can also find these reports on the Internet at: www.epa.gov/airnow. You can use the AQI to plan your activities each day to help reduce your asthma symptoms.

4 For more information:

Air quality and health:

- EPA's AIRNow website at www.epa.gov/airnow
- Call 1-800-490-9198 to request free EPA brochures on: *Ozone and Your Health*, *Particle Pollution and Your Health*, and *Air Quality Index: A Guide to Air Quality and Your Health*.

Asthma:

- Centers for Disease Control and Prevention (CDC) Web site at www.cdc.gov/asthma

Indoor air and asthma:

- EPA's asthma website at www.epa.gov/asthma



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