



MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

Community Health Worker
Pediatric Asthma
Home Visiting Program

Protocol Manual

2017

Introduction to the Protocol Manual

The APCP *CHW Pediatric Asthma Home Visiting Program: Protocol Manual* is adapted from the APCP's *Reducing Ethnic/Racial Asthma Disparities in Youth (READY)* study protocol.

The model protocol has been generalized for use outside of the research context, but retains its strong evidence base. The APCP recommends the model protocol for new CHW asthma home visiting programs.

Additional information about the development and implementation of this *Protocol Manual* can be found in the *Program Summary*.

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Supply List

CLEANING SUPPLIES

- Trash can with lid
- Mop
- Bucket
- Vinegar
- Baking soda
- Dust cloths
- Sponges
- Spray bottles (for vinegar/water cleaning solution)
- “Swiffer” mops and replacements
- HEPA vacuum cleaner (approximately \$100/vacuum)

FOOD STORAGE

- Dry food storage containers

ANTI-PEST SUPPLIES

- Glue traps
- Roach gel

PILLOW AND MATTRESS ENCASEMENTS

- Pillow covers
- Mattress covers (in sizes twin through king)

You Can Control Asthma

Note

The model protocol includes various references to the *You Can Control Asthma* booklet, which you will find also written as YCCA. Below is a summary statement found on the Asthma and Allergy Foundation of America website to provide you with details on the YCCA program.

You Can Control Asthma is a validated asthma education program designed to give children ages 6 to 12 and their families more self-confidence and the necessary knowledge and skills needed to control asthma. It consists of a set of parallel booklets for children and their parents, which teach principles of asthma management through pictures, captions, and activities.

Also included is an Implementation Guide designed to provide successful strategies for educating families in clinical, community, school, and home settings using the *You Can Control Asthma* booklets.

These easy-to-read, culturally appropriate booklets, available in English and Spanish, can be used alone or with the Implementation Guide in a formal educational program.

The illustrations, messages, vocabulary and layout of the booklets have been extensively tested with children and adults who have reading limitations.

To order the booklets, please visit www.aafa-md.org/store/you_can_control_asthma.htm

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Checklist



PARTICIPANT ID # _____ **VISIT DATE** _____

BASELINE QUESTIONNAIRE #1 COMPLETED **YES**

ASTHMA BASICS PROTOCOL

- Review educational messages in protocol
- Introduce *You Can Control Asthma* booklet
- Review appropriate *You Can Control Asthma* booklet pages (*see protocol*)

WARNING SIGNS OF ASTHMA PROTOCOL

- Review educational messages in protocol
- Review appropriate *You Can Control Asthma* booklet pages (*see protocol*)
- Go over *Asthma Action Plan* with family

WHAT TO DO DURING AN ASTHMA ATTACK PROTOCOL

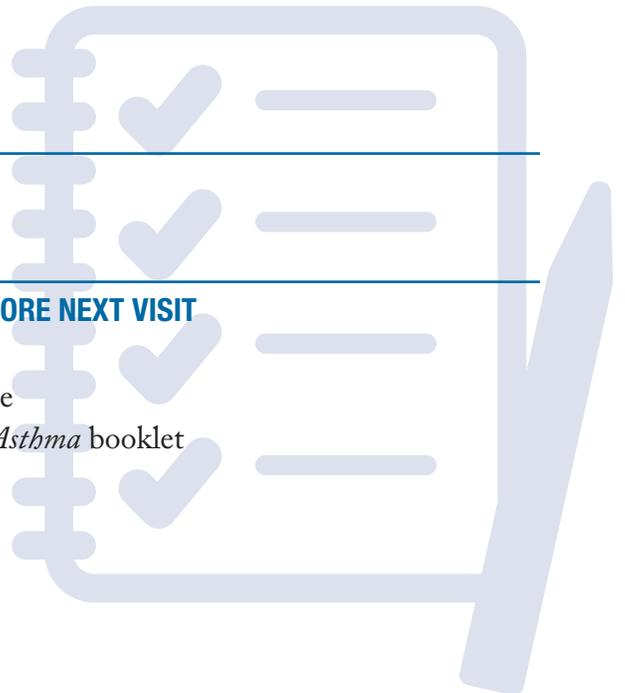
- Review educational messages in protocol
- Review appropriate *You Can Control Asthma* booklet pages (*see protocol*)
- Give family the following handouts:
 - *Take Everyday Control Medications*
 - *Quick Relief Medications*
 - *How to Clean Your HFA Inhaler*
 - *Priming and cleaning your HFA Inhaler*

FLU VACCINATION

- Give family the *Flu Vaccination* handout

SUGGESTED ACTIVITIES FOR PARENTS/CAREGIVERS BEFORE NEXT VISIT

- Make a list of your child's known asthma triggers
- Identify family actions to reduce triggers in the home
- Child looks at pages 6-7, 13-18 in *You Can Control Asthma* booklet



PROTOCOL

Asthma Basics

STATEMENT OF THE PROBLEM

Twenty-two million people in the United States are affected by asthma and it is the most common chronic disease in childhood, affecting more than 6 million children.

Asthma is a chronic disorder of the airways that is characterized by variable and recurring symptoms which involve airflow obstruction, inflammation and an exaggerated bronchoconstrictor response to a wide variety of stimuli. There is no cure for asthma, but its symptoms can be managed with medication.

BACKGROUND

- Asthma is a chronic disease. It is always present, though asthma symptoms like coughing, wheezing, and trouble breathing come and go. Asthma stays in people's lungs all the time and people have it for many years. The potential for symptoms to return is always present. Asthma requires attention even when you feel well.
- It is important to pay attention to asthma. If not treated properly, it can limit your activities, affect success in work, interfere with family activities, and even lead to visits to the emergency room (ER) or death.
- There is no clear way to predict how asthma will affect you in the long term. While some people with asthma may have fewer symptoms (or even no symptoms) when they grow older, others will continue to be affected for the long term.
- There is no cure for asthma, but with proper treatment asthma can be controlled. Good control of asthma means:
 - Participating in work, play, physical activity, and sports normally.
 - Living free from symptoms, day and night.
 - Being able to avoid serious episodes that lead to urgent clinic visits, emergency room visits, hospitalizations, missed school days, and missed work.
- Asthma affects the airways that bring air to the lungs. Triggers are things that affect the airways and bring on asthma symptoms. People with asthma have airways that are unusually sensitive to triggers. The triggers cause swelling and narrowing of the airways as well as

From the Reducing Ethnic/Racial Asthma Disparities in Youth (READY) Study, adapted with permission from Dr. Jim Krieger, Seattle King County Public Health Department.



increased mucus production. These in turn block the airways, making it hard to get air in and out of the lungs, which causes asthma symptoms like wheezing, cough, and shortness of breath or chest tightness.

- Asthma medications work by decreasing the mucus and swelling, and by relaxing the muscles which are tightening up and narrowing the airway. As a result, the medicines open up the airway.
- There are two main types of asthma medicines.
 - **Controller medications** (sometimes called “daily preventive”) are taken daily to prevent attacks. Think of them as a vitamin to keep asthma away. They need to be taken every day, even if you feel good. They decrease mucus and swelling.
 - **Reliever medications** (sometimes called “rescue” or “quick relief”) are used when symptoms occur. They relax the airway muscles quickly. If you use reliever medicines more than twice a week, it means your asthma is not under control, and you should talk to your nurse or doctor.
- Medicines need to be used with proper technique to be effective. A spacer/holding chamber helps make sure you get the medicines properly when using a metered dose inhaler (MDI).
- Triggers of asthma symptoms include pollen, dust mites, mold, cats, dogs, rodents, cockroaches, climate changes, cigarette and other types of smoke, strong odors, air pollution, emotions or stress, menstrual cycles, exercise, and colds and other infections.
- Asthma is not an emotional disease: emotions do not cause asthma. But for some people with asthma, strong emotions like crying or laughing can set off an asthma attack.
- Knowing what triggers set off asthma allows you to take action to keep them away.
- Asthma can be monitored by following your symptoms and/or by using a peak flow meter. When symptoms or peak flow worsen, using an action plan is helpful. An action plan is a written set of instructions from your doctor or nurse which says what to do if asthma symptoms or peak flow get worse.
- If you have frequent asthma symptoms, a change in your medications might be needed. You should let your provider know about this and any other concerns. The provider must know about symptoms and what medication you are taking in order to prescribe the right medication. You should make sure the provider explains everything clearly.

PROTOCOL

Asthma Basics

ASSESSMENT

First time talking about Asthma Basics.

Establish base of what they know about asthma:

- Tell me what you know about asthma that you've learned from your healthcare provider or asthma nurse. (Listen or prompt for an understanding of how asthma affects the lungs and that asthma is a chronic disease. Also listen/prompt for proper use of medicines, inhaler technique, action plan, triggers, self-monitoring.)
- What more would you like to know or understand better about asthma?
- How is your asthma doing?

Ask about recent events:

- During the last two weeks, how many days or nights did you have asthma symptoms, like wheezing, coughing, shortness of breath or chest tightness?
- During the past three months, how many times did you stay overnight in the hospital, go to the emergency room, or make an urgent trip to the clinic because of asthma that was getting worse?
- During the past three months, have you slowed down during play or not participated in usual activities because of asthma?
- Has your asthma interfered with your activities like going to work or getting things done around the house, or interfered with regular family activities? How? Are there any other ways in which your asthma has affected you?
- What are one or two things you'd like to see changed about the way asthma now affects you?
- If a child is the participant, during the past three months, has your child missed more than five days of school?
- Has your child's asthma interfered with your activities like going to work or getting things done around the hours, or those of the family? How?

Ask about controlling plan and goals:

- What are one or two things you would like to do now to help control your asthma better?
- Probe to identify priorities. Explore how life would be improved if asthma was better controlled.



EDUCATIONAL MESSAGES

- Introduce the *You Can Control Asthma* booklet.
- Asthma is a chronic illness.
- Asthma is not curable, but it can be managed. Good control means no symptoms day or night, participating in all activities, no ER visits or hospitalizations or missed school/work.
- It is important to pay attention to asthma. If not treated properly it can limit your activities, lead to ER visits, and even can cause death.
- Asthma affects the airways.
 - Triggers cause narrowing, swelling, and mucus production in the airways.
 - This swelling blocks the airways and it's hard to get air into and out of the lungs.
 - This causes asthma symptoms: wheezing, coughing, shortness of breath, or chest tightness.
- There are two types of medications: asthma controller (used daily), and asthma reliever or rescue (used when symptoms appear). Good technique is essential. Taking them exactly as prescribed is essential.
- Know your triggers and keep away from them. Triggers include dust mites, mold, cats, rodents, roaches, tobacco smoke, pollens, and strong chemical odors.
- Monitor your asthma. Use a peak flow meter if symptoms are getting worse or if you've had an asthma attack sneak up on you. Follow your *Asthma Action Plan*. (Explain what a peak flow meter is if necessary and let the client know you will talk more about this later.)
- You and your provider are partners in keeping you healthy. If symptoms worsen, or don't improve, call your provider. A change in medication or elimination of a trigger should be considered. Always keep follow-up appointments.

PROTOCOL

Asthma Basics

ACTIONS

CHW Actions	Caregiver Actions
Introduce the <i>You Can Control Asthma (YCCA)</i> booklet to family.	Follow along in <i>YCCA</i> booklet during relevant discussions.
Review basic lung function and basic asthma physiology using diagrams as needed and based on an assessment of client knowledge.	Communicate an understanding of the changes in the lung that occur with asthma.
Assess level of asthma control by reviewing asthma symptoms, number of urgent clinic visits, ER visits and hospitalizations in the past year.	Communicate an understanding of what to expect from good asthma control. Identify when to contact a doctor or nurse, and understand why and when it is important to communicate with them.
Teach about asthma triggers.	Identify personal triggers.
Teach about the two types of asthma medications, relievers, and controllers.	Describe own medications and when/how to take them properly.

TAKE-AWAY MESSAGES FOR PARENTS AND CAREGIVERS

- Airways bring air into and out of the lungs.
- Asthma causes airways to become swollen and narrow.
- Airways produce mucous, and muscles surrounding the airways tighten, making it harder to breathe.
- Asthma is always present in the lungs, but symptoms—coughing, wheezing and trouble breathing—come and go.
- **Triggers** are things that can bring on asthma symptoms. Exposure to triggers can cause swelling and narrowing of the airways, and increased mucus production.
- Knowing what triggers set off asthma allows you and your child to take action to keep them away. Identify, eliminate, and control known asthma triggers.



SUPPLIES

- None.

EDUCATION BOOKLET PAGES

You Can Control Asthma – Family Booklet

- Physiology of asthma pages 5–7
- What causes asthma? pages 11–12
- What is a trigger? page 13
- What triggers your child’s asthma? pages 13–18

You Can Control Asthma – Kids Booklet

- Physiology of asthma page 4
- What causes asthma? pages 4–6
- What triggers your child’s asthma? pages 13–18

REFERRALS

- Refer to child’s primary care provider for asthma care, if necessary.

PROTOCOL

Warning Signs of Asthma

STATEMENT OF THE PROBLEM

Prevention of asthma attacks is a key component of asthma management. Helping clients to recognize symptoms that lead to their attacks, and teaching them what to do when their warning signs occur, are vital to asthma control. Using either peak flow or symptom self-monitoring appears to increase a child's awareness of the disease status and control. Having an *Asthma Action Plan* in place is important (Source: *Expert Panel Report*, pg. 49, 61).

BACKGROUND

- Many children have predictable feelings or symptoms for a long time before they actually have trouble breathing or have an asthma attack. It is important to look for these symptoms daily because they can be early warning signs of asthma.
- **Early Warning Signs** are written down in the child's *Asthma Action Plan*.
- The earlier you recognize your warning signs, the earlier you can start treatment. This may avoid the need for emergency treatment.
- If any warning signs occur, checking peak flow can give you more information about how bad the asthma is getting. Sometimes symptoms can appear mild, but peak flow can show that asthma is seriously out of control.
- The presence of early warning signs means that the child is in the Yellow Zone of the *Asthma Action Plan*.
- **Late Warning Signs** mean that the child is in the Red Zone and needs immediate medical care. Late warning signs include:
 - Wheezing that gets worse even after rescue medicine has been given.
 - Breathing that gets faster even after rescue medicine has been given.

From the Reducing Ethnic/Racial Asthma Disparities in Youth (READY) Study, adapted with permission from Dr. Jim Krieger, Seattle King County Public Health Department.



- Difficulty breathing:
 - Nostrils flaring
 - Pale skin/blue-gray color around lips
 - Increased coughing interfering with breathing
 - Skin cold and sweaty
 - Retractions of the muscles in the neck and between ribs
 - Breathing fast
 - Grunting or wheezing
 - Stomach muscles tense
 - Difficulty walking or talking
- Using both peak flow and symptom self-monitoring is the best way to assess the severity of asthma. The zone of the *Asthma Action Plan* is best determined by considering both symptoms and peak flow. If either indicates the Red Zone, then the child is in the Red Zone. If neither is in the Red Zone, but one is in the Yellow Zone, then the child is in the Yellow Zone.

ASSESSMENT

- Determine if the child knows their early asthma symptoms.
- Assess the child's knowledge of late warning signs of asthma.
- Check to see if child has an *Asthma Action Plan*.
- Check to see if the child can use symptoms to determine the zone of Asthma Action Plan and what to do in response to symptoms.
- Check to see if the child has a peak flow meter and knows how and when to use it.

EDUCATIONAL MESSAGES

- Being aware of early symptoms and taking action early might prevent the need for emergency treatment.
- If any warning signs occur, checking peak flow can give you more information about how bad the asthma is getting. Peak flow can show that asthma is more serious than symptoms indicate.
- The presence of early warning signs means that the child is in the Yellow Zone of the *Asthma Action Plan*.
- Late Warning Signs mean that child is in the Red Zone and needs immediate medical care.
- Using both peak flow and symptoms is the best way to assess the severity of asthma.

PROTOCOL

Warning Signs of Asthma

ACTIONS

CHW Actions	Caregiver Actions
If the child is unaware of early or late signs, help them identify the signs that usually show when asthma is worsening.	Learn to recognize your early warning signs of asthma.
Contact the nurse care manager to let them know if further education about signs is needed.	Know the late warning signs.
Review how to use symptoms and <i>Asthma Action Plan (AAP)</i> to figure out what to do to prevent asthma episode from worsening.	Know how to check breathing rate.
Instruct the caregiver to ask their health care provider for an <i>Asthma Action Plan</i> if he/she does not have one.	Know what to do when early and late signs occur, based on <i>Asthma Action Plan</i> .
Provide a peak flow meter and instruct in use if child does not have one.	Use the peak flow meter when any signs (early or late) of asthma occur.
<p>Make sure the caregiver understands that using both peak flow and identifying symptoms is the best way to assess the severity of asthma. The zone of the <i>Asthma Action Plan</i> is best determined by considering both symptoms and peak flow.</p> <p>If either indicates the Red Zone, then the child is in the Red Zone. If neither is in the Red Zone, but one is in the Yellow Zone, then the child is in the yellow zone.</p>	



TAKE-AWAY MESSAGES FOR PARENTS AND CAREGIVERS

- Monitoring asthma symptoms (coughing and wheezing), using a peak flow monitor (if child is 6 years old or older) and following an *Asthma Action Plan* can help you manage asthma flare-ups early.

SUPPLIES

- Peak flow meter (if available)
- *Asthma Action Plan*

EDUCATION BOOKLET PAGES

You Can Control Asthma – Family Booklet

- What to Do When an Asthma Attack Starts pages 8–10
- How to Use a Peak Flow Meter pages 56–57
- Monitoring Asthma page 20
- Early Warning Signs of Asthma (Yellow Zone) pages 8–12
- Late Warning Signs of Asthma (Red Zone) page 9

You Can Control Asthma – Kids Booklet

- How an Asthma Attack Starts pages 5–7
- What to Do When an Asthma Attack Starts pages 8–9
- How to Use a Peak Flow Meter pages 19–21
- Monitoring Asthma pages 19
- Early Warning Signs of Asthma (Yellow Zone) pages 7–9

REFERRALS

- Refer to child’s primary care provider for asthma care, if necessary.

PROTOCOL

What to do During an Asthma Attack

STATEMENT OF THE PROBLEM

Knowing what to do when asthma symptoms increase is critical to effectively managing asthma. Sometimes asthma can worsen rapidly, so catch it early.

BACKGROUND ASSESSMENT

Ask participants to describe what they do when they have severe asthma symptoms.

EDUCATIONAL MESSAGES

The most important things you can do during an acute asthma episode are:

- Give asthma medicine as directed (by the *Asthma Action Plan*).
- Remove child from anything that is triggering symptoms.
- Seek medical help as needed—have the phone number of the clinic/consulting nurse handy.

There are several things you can do to reduce your child's discomfort and symptoms during an asthma episode, in addition to providing reliever/rescue medication. These include:

- Calm down the child—anxiety about asthma sometimes makes the symptoms worse.
- Reduce the child's activity level if he/she is having moderate to severe symptoms.
- Find a comfortable position—provide privacy, because embarrassment can make it hard for a child to focus on using medication and calming down.
- Suggest belly breathing, which can be helpful during an attack.
- Give the child water—a dry throat or dehydration can make symptoms worse because the airways may become more reactive.

Call 9-1-1 if your child can't breathe.

From the Reducing Ethnic/Racial Asthma Disparities in Youth (READY) Study, adapted with permission from Dr. Jim Krieger, Seattle King County Public Health Department.



ACTIONS

CHW Actions	Caregiver Actions
<p>For Adults:</p> <p>Teach participant relaxation techniques including speaking in a calm voice, providing privacy, distraction (e.g. puzzle, video, etc.).</p>	<p>Describe what to do when you or your child with asthma is working too hard to breathe.</p>
<p>Review the signs to tell if asthma is getting worse. These are signs that the participant is working hard to breathe and needs medical advice or urgent care.</p>	<p>Recognize when asthma is getting worse either by symptoms or use of peak flow.</p>
<p>Signs include: peak flow that does not get higher after reliever use; breathing that's hard, fast, and noisy; person has trouble walking or talking.</p>	<p>Follow the <i>Asthma Action Plan</i>, take meds as prescribed, and remove triggers.</p>
<p>For Kids:</p> <p>Symptoms include: nose opens wide when breathing; spaces in between ribs or around collar bones sink in; face, lips or fingernails turn gray or blue.</p>	<p>Relax and decrease activity level.</p>
<p>Demonstrate belly breathing.</p>	<p>Get medical advice per <i>Asthma Action Plan</i> — call clinic for mildly increasing symptoms, call 9-1-1 if symptoms are severe.</p>

PROTOCOL

What to do During an Asthma Attack



TAKE-AWAY MESSAGES FOR PARENTS AND CAREGIVERS

- **Yellow Zone:** Cough, mild wheeze, chest tightness, coughing or wheezing at night. Give rescue medicine now. Call doctor/clinic to schedule asthma checkup.
- **Red Zone:** Rescue medicine is not helping, breathing is hard and fast, nose opens wide, ribs show with breathing, can't talk well. Call 9-1-1 or go to Emergency Room.

SUPPLIES

- *Asthma Action Plan*

EDUCATION BOOKLET PAGES AND HANDOUTS

You Can Control Asthma – Family Booklet

- What to Do When an Asthma Attack Starts pages 8-10
- Controller Medication pages 26-32, 34, 37
- Rescue Medication pages 26, 29, 30

You Can Control Asthma – Kids Booklet

- What to Do When an Asthma Attack Starts pages 5-7
- Controller Medication page 34
- Rescue Medication page 34

Handouts

- *Take Everyday Control Medications*
- *Quick Relief Medications*
- *How to Clean Your HFA Inhaler*

REFERRALS

- Refer to child's primary care provider for asthma care, if necessary.

Take Everyday Control Medications

These work to keep your airways from getting swollen and narrow. These medications work best when taken **every day**.

Advair

100/50	250/50	500/50
Every AM 1 Puff	Every PM 1 Puff	
45/21	115/21	230/21
Every AM 2 Puffs	Every PM 2 Puffs	

Symbicort

80/4.5	160/4.5
Every AM 2 Puffs	Every PM 2 Puffs

Pulmicort

90 mcg	180 mcg
Every AM 1 2 3 4 Puffs	Every PM 1 2 3 4 Puffs

Flovent

44 mcg	110 mcg	220 mcg	50 mcg
Every AM 1 2 3 4 Puffs	Every PM 1 2 3 4 Puffs		

Singulair

4 mg	5 mg	10 mg	4 mg granules
Take 1 every PM			

Budesonide Inhalation Solution

Every AM 1 2 nebulizer treatments	
Every PM 1 2 nebulizer treatments	

Notes _____

These work quickly to help stop asthma symptoms that have already started.

They help to **temporarily** relieve symptoms such as coughing, wheezing, chest tightness, and shortness of breath. These can be used before exercise to prevent symptoms.

Inhalers

Take up to ____ puffs

every ____ hours



ProAir



Ventolin



Combivent



Xopenex

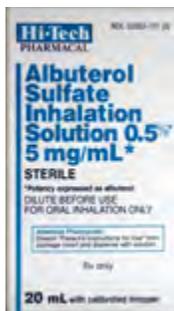


Proventil

Nebulizer Medications

Medication you mix

Take one nebulizer treatment every ____ hours



← 0.50 ml

← 0.25 ml



____ ml of Albuterol



saline

+



____ ampule(s) of saline

Nebulizer Medications

Already mixed medication

Take ____ ampule(s) every ____ hours



If your breathing is not improved after your first quick relief inhaler (or nebulizer) treatment, do the following:

Next appointment in _____ weeks, months. Always bring your asthma medicines and spacer to your asthma appointment. Ask your provider to check that you are using them correctly.



How to Clean Your HFA Inhaler



Medicine comes out of this tiny hole which can get blocked easily. The mouthpiece needs to be **clean AND dry** in order to work properly.



Mouthpiece



Medicine Canister



1. Take the medicine canister out of the mouthpiece



2. Wash the mouthpiece with warm water



Do NOT wash the medicine canister!



3. Air dry overnight



4. Replace canister and cap when the mouthpiece is dry



Priming and Cleaning Your HFA Inhaler



When to prime

of Sprays

When to clean



ProAir HFA®

Initial use *and* after
2 weeks of no use

3 sprays

At least once each week



Proventil HFA®

Initial use *and* after
2 weeks of no use

4 sprays

At least once each week



Ventolin HFA®

Initial use *and* after
2 weeks of no use

4 sprays

At least once each week



Xopenex HFA®

Initial use *and* after
3 days of no use

4 sprays

At least once each week



My Little Boy Has Asthma.

We'll **BOTH** Get Our Flu Vaccine.

If you live with or care for someone at high risk for serious complications from seasonal influenza, you should get a seasonal flu vaccine. Groups at high risk include kids and adults with chronic medical conditions like **asthma** and **diabetes**.

For more information, visit
<http://www.flu.gov> or <http://www.cdc.gov/flu>



U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention

CS212299-M

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Checklist



PARTICIPANT ID # _____ VISIT DATE _____

BASELINE QUESTIONNAIRE #2 COMPLETED YES

ASTHMA ACTION PLAN

Review *Asthma Action Plan* with family

DUST MITES AND ASTHMA PROTOCOL

Review educational messages in protocol

Review appropriate *You Can Control Asthma (YCCA)* booklet pages (see protocol)

Give family the following handouts:

- *Goals for Getting Rid of Dust Mites*

PETS AND ASTHMA PROTOCOL

Review educational messages in protocol

Review appropriate *You Can Control Asthma* booklet pages (see protocol)

Give the family the following handouts:

- *Goals for Cutting Down on Your Contact with Pets*

SECONDHAND SMOKE PROTOCOL

Review educational messages in protocol

Review appropriate *You Can Control Asthma* booklet pages (see protocol)

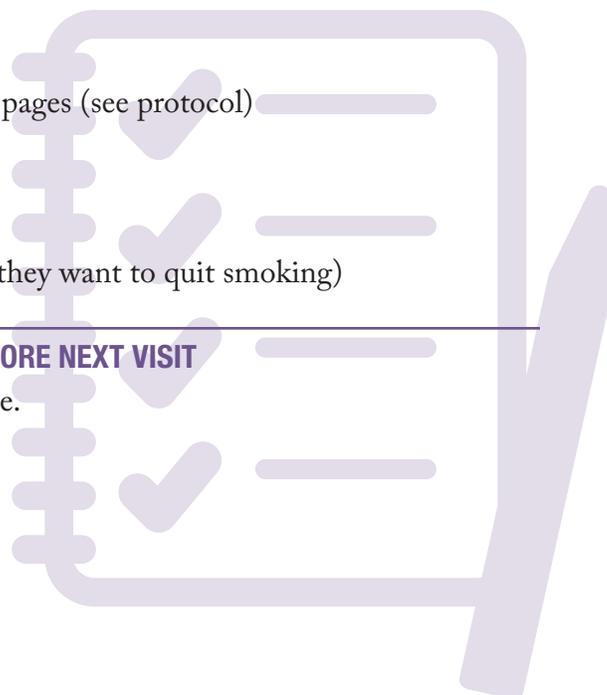
Give family the following handouts:

- *Goals for Avoiding Exposure to Smoke*
- *Before You Light Up, Look Down Fact Sheet*
- *Want to Quit Smoking?* (only for families that say they want to quit smoking)

SUGGESTED ACTIVITIES FOR PARENTS/CAREGIVERS BEFORE NEXT VISIT

■ Identify family actions to reduce triggers in the home.

■ Review the YCCA pages for Visit 1 with child.



PROTOCOL

Dust Mites and Asthma

STATEMENT OF THE PROBLEM

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 children 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° F (55° C) 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.

From the Reducing Ethnic/Racial Asthma Disparities in Youth (READY) Study, adapted with permission from Dr. Jim Krieger, Seattle King County Public Health Department.



- Mites get their water from the moisture in the air, so dust mites grow best in moist, humid places.
- HEPA (High Efficiency Particle Air) 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 and mattress) are helpful, especially when used in conjunction with other control measures.
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 covers.

EDUCATIONAL MESSAGES

- Dust mites are the most important indoor cause of allergies that can trigger asthma.
- 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, no matter how clean the house appears.
- There are multiple methods for controlling dust mites. They include: washing bedding, using allergy control covers on mattresses and pillows, keeping humidity below 50% in the house, and using a HEPA vacuum.

PROTOCOL

Dust Mites and Asthma

ACTIONS

CHW Actions	Caregiver Actions
<p>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.</p>	<p>Put allergy control covers on mattresses and pillows if not already present.</p>
<p>Review moisture control protocol as needed.</p>	<p>HIGH-PRIORITY ACTIONS</p> <ul style="list-style-type: none">■ 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 water (130°).■ Return the water temperature back to a safe 120° after washing bedding, or 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.■ Remove upholstered furniture from the child's bedroom. Replace with wood, vinyl or leather furniture.■ If unable to change furniture, vacuum upholstered furniture weekly.■ Avoid sleeping or lying on upholstered furniture or carpets.■ Reduce indoor humidity to between 30% and 50%.



CHW Actions	Caregiver Actions
<p>Review moisture control protocol as needed. (Continued)</p>	<ul style="list-style-type: none">■ Remove carpets from the bedroom. Remove carpets from the home 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 before doing so, if you feel it is reasonable to approach the landlord/manager.) <p>LOWER PRIORITY ACTIONS</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 when 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.

PROTOCOL

Dust Mites and Asthma

TAKE-AWAY MESSAGES FOR PARENTS AND CAREGIVERS

Dust and dust mites are the most common asthma trigger.

- Encasing mattress and pillows in allergen proof covers will reduce exposure to dust and dust mites.
- Wash sheets, pillowcases and blankets weekly in very hot water.
- Dust and vacuum child's room twice per week.
- Damp mop hard floor in the child's room twice per week.
- Remove upholstered furniture from child's bedroom; replace with wool, vinyl, or leather furniture.
- Minimize the number of stuffed animals and wash them weekly. (Freezing for 24 hours also kills dust mites.)
- Keep indoor humidity between 30% and 50%.

SUPPLIES

Allergen control mattress and pillow covers

You Can Control Asthma – Kid Booklet

- How to Keep Asthma Attacks from Starting Pages 14–15

EDUCATION BOOKLET PAGES AND HANDOUTS

You Can Control Asthma – Family Booklet

- How to Control Dust in Your Child's Bedroom Pages 14

You Can Control Asthma – Kid Booklet

- How to Keep an Asthma Attack from Starting Pages 14–15

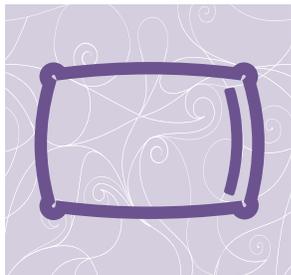
Handouts

- *Goals for Getting Rid of Dust Mites*

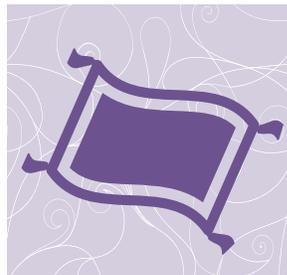
REFERRALS

- To child's primary provider for asthma care, if necessary.

Goals for Getting Rid of Dust Mites



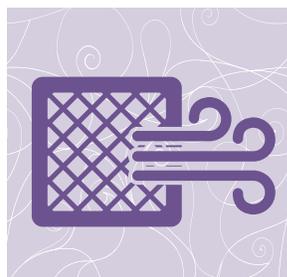
Encase your pillows in special allergen-proof covers.



Remove carpeting if possible and replace with washable area rugs.



Encase your mattress and box spring in special allergen-proof covers.



If you have forced air, keep filters over vents and replace filters every three months.



Wash blankets and bed sheets every two weeks in hot water.



Remove dust collectors like stuffed animals. Pick one favorite animal that is washable.



Vacuum areas with carpet every week with a HEPA vacuum cleaner.



Damp-dust all surfaces in the bedroom weekly.



Damp-mop areas without carpet every two weeks.

From the Reducing Ethnic/Racial Asthma Disparities in Youth (READY) Study, adapted from A Guide for Helping Children with Asthma, Inner City Asthma Program a product of the National Cooperative Inner City Asthma Study. Icons by Freepik.

PROTOCOL

Pets and Asthma

STATEMENT OF THE PROBLEM

All warm-blooded animals, including pets, produce dander, urine, feces, and saliva that can cause allergic reactions. Having an animal in the house can make asthma worse if the child is sensitive to animal antigen.

BACKGROUND

Expert Panel Report 3—Guidelines for the Diagnosis and Management of Asthma (EPR-3) recommend the following actions to control animal antigens:

- If the child is sensitive to the animal, the treatment of choice is removal of the exposure from the home.
- If removal of the animal is not acceptable:
 - Keep pets out of the child’s bedroom.
 - Keep the child’s bedroom door closed.
- Remove the upholstered furniture and carpets from the home, or isolate the pet from those items to the extent possible.

ASSESSMENT

- If the child is allergic to cats, dogs, or rodents, ask if any pets are in the house and what kinds. Indicate in tracking system that a pet is present.
- Ask how much time each dander-producing pet spends in each room.
- Assess prior education received by the caregiver regarding pets and the caregiver’s knowledge.
- Ask what caregiver does to reduce exposure to pet dander.

EDUCATIONAL MESSAGES

- All warm-blooded pets, including dogs, cats, and birds, produce substances (allergens) that can trigger asthma.
- These allergens include dander (flakes from the hair or skin), as well as substances in the saliva, feces, and urine.
- Because the child is sensitive to these allergens, having an animal in the house can make asthma worse. (Assuming a skin test showed sensitivity.)

From the Reducing Ethnic/Racial Asthma Disparities in Youth (READY) Study, adapted with permission from Dr. Jim Krieger, Seattle King County Public Health Department.



VISIT 2

- Allergens from cats (and possibly dogs) are found even in homes with no pets, although at lower levels. Even these levels can cause problems for people who are allergic to these animals.
- The best approach is to remove the pet from the home.
- If this is not acceptable (and it usually is not), suggest keeping the pet out of the child's bedroom and play area at all times. Also, suggest keeping the pet outdoors or in the basement or utility room at night. Keep the bedroom door closed.
- Suggest that no new warm-blooded pets be introduced. Fish are fine, and reptiles (like snakes, iguanas and other lizards) are also OK if the child is 5 years old or older. All family members should wash hands with soap and water after handling reptiles because they carry a bacteria called Salmonella. Because some younger kids are not as good at washing up, reptiles may not be a good choice for them.
- A HEPA air filter can help remove pet allergens from the air. People who have pet allergies should consider using one, especially in the bedroom.
- Vacuuming can reduce the amount of pet allergen in the home, even if there are no pets in the house. You can also use a sticky lint roller brush to remove pet hair from furniture.
- Consider draping a pet blanket over your pet's favorite spot and toss it in the wash as needed (at least once a week).
- Removing carpet, drapes, and cloth-covered furniture can also help, because these trap the triggers that come from pets.
- It is not essential to wash pets, although this may help with allergies to dogs (but not cats).

PROTOCOL

Pets and Asthma

ACTIONS

CHW Actions	Caregiver Actions
None	Remove pet from the home or keep out of bedroom and play area.
	Use a HEPA air filter to remove pet allergens from the air.
	Pay special attention to vacuuming: vacuum bedroom and cloth-covered furniture (used by child with asthma) twice a week and other rooms and cloth-covered furniture weekly.
	Use a sticky lint roller brush to remove pet hair from furniture if vacuuming doesn't remove it all.
	Drape a pet blanket on your pet's favorite spot; wash blanket weekly.
	Remove carpet, drapes, and cloth-covered furniture because these trap the triggers that come from pets.



TAKE-AWAY MESSAGES FOR PARENTS AND CAREGIVERS

- Remove pet from home *or* keep out of child's bedroom and play area.
- Use a HEPA air filter to remove pet allergens from the air.
- Vacuum bedroom and cloth-covered furniture twice a week to remove pet hair.
- Drape a pet blanket on your pet's favorite spot and wash blanket weekly in hot water.
- Remove carpet, drapes and cloth cover furniture that can trap the asthma triggers that come from pets.

EDUCATION BOOKLET PAGES AND HANDOUTS

You Can Control Asthma – Family Booklet

- How to Keep Asthma Attacks from Starting page 11

You Can Control Asthma – Kids Booklet

- How to Keep Asthma Attacks from Starting page 10

Handouts

- *Goals for Cutting Down on Your Contact with Pets*

REFERRALS

- Animal Rescue League of Boston 617-426-9170
- MSPCA 617-522-5055

Goals for Cutting Down on Your Contact with Pets



Find a new home for your pet, if possible.



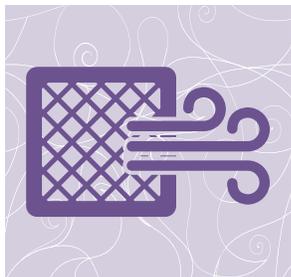
Wash your pet every two weeks.



Keep your bedroom door shut in order to keep the pets out.



Wash blankets and bed sheets every two weeks in hot water.



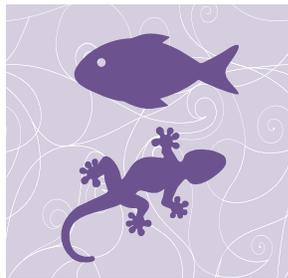
Use an air-cleaning device with a HEPA filter to remove pet allergens from the air.



Vacuum carpet/rugs every week. Damp-mop areas without a carpet.



Wash your hands after playing with a pet and keep your face away from fur.



Choose a pet without fur or feathers.



Encase your pillows and mattress in special allergen-proof covers.

From the Reducing Ethnic/Racial Asthma Disparities in Youth (READY) Study, adapted from A Guide for Helping Children with Asthma, Inner City Asthma Program a product of the National Cooperative Inner City Asthma Study. Icons by Freepik.

PROTOCOL

Secondhand Smoke



STATEMENT OF THE PROBLEM

Exposure to secondhand smoke is common in the U.S. Secondhand smoke is associated with increased asthma symptoms, decreased lung function, and greater use of health services among those who have asthma in all age groups, although effects may vary by age. Exposure to maternal smoking has been shown to be a risk factor for the development of asthma in infancy and childhood.

Effects of secondhand smoke on a child's asthma are greater when the mother smokes than when others in the household smoke. Heavy smokers may be less aware of the effects of secondhand smoke exposure on children.

The primary modes of exposure to secondhand smoke for adults who have asthma may be at work or while traveling. Secondhand smoke exposure operates as a co-factor in wheezing, along with infections. Smoking outdoors to avoid exposing others may not adequately reduce exposure for children. (*Source: Expert Panel Report pages 175-176.*)

BACKGROUND

The Expert Panel recommends that clinicians advise patients who have asthma not to smoke or be exposed to secondhand smoke (Evidence C). Ask patients about their smoking status. Consider referring to smoking cessation programs for adults who smoke and have young children who have asthma in the household (Evidence B). It is now well established that exposure to secondhand smoke increases the severity of asthma, increases the risk of asthma-related emergency department visits and hospitalizations, and decreases the quality of life in both children and adults.

From the Reducing Ethnic/Racial Asthma Disparities in Youth (READY) Study, adapted with permission from Dr. Jim Krieger, Seattle King County Public Health Department.

PROTOCOL

Secondhand Smoke

ASSESSMENT

As a routine part of the child's asthma care, counsel parents about the negative effects of smoking and secondhand smoke. Children and caregivers of children with asthma should be encouraged to quit and to use proven cessation resources.

- Determine who smokes in the house and record information on visit encounter form.
- Determine situations in which child is exposed to smoke (in home, in car, etc.) and record.

Screening for home smoke exposure for kids

- Ask:
 - “Does the primary caregiver smoke?”
 - “Is there a home smoking ban?”
- If primary caregiver or child smokes, determine their “stage of change” in relation to quitting and note on visit encounter form. Is the smoker:
 - **Not Considering Quitting** at this time (precontemplator): Provide information about the health consequences of smoking.
 - **Planning to Quit** in the next six months (contemplator): Explore the pros and cons for quitting and use the decisional balance to move the caregiver closer to the pros of quitting.
 - **Ready to Quit Soon in the next 30 days:** Help caregivers set a quit date and refer them to www.quitworks.org for additional support.
 - **Quit in the Past Year:** Acknowledge the accomplishment and assess for any need for support.
 - **Recently Relapsed:** Acknowledge past success and that relapse is part of the quitting process.
 - Encourage a new quit attempt and refer the caregiver to QUIT WORKS at 1-800-879-8678
 - Note: The change from smoker to non-smoker is a fluid process; a person may move forward and backward several times through these stages before quitting for good.
- If others smoke, ask primary caregiver about their readiness to quit, or ask them to avoid smoking indoors.
- Assess prior education received by client and client's knowledge.



EDUCATIONAL MESSAGES

- Smoking harms not just the smoker, but also family members, co-workers, and others who breathe the smoker’s cigarette smoke, called “secondhand smoke.”
- Exposure to secondhand smoke increases the severity and frequency of asthma episodes.
- Caregivers living with smokers are more likely to develop pneumonia, colds, cough, flu, sore throats, and ear infections.
- When someone smokes inside the home, it takes only 15 minutes for the tobacco smoke to reach every room in the house.
- Particles of tobacco smoke “stick” to skin, hair, clothing, furniture, carpet, and drapes, even after smoke seems to have cleared from the air. Children are then exposed to the tobacco smoke even if they were not around while someone was smoking.
- Tobacco smoke contains nicotine, as well as 4,000 other chemicals, 43 of which have been shown to cause cancer in humans.
- It is important to minimize children’s exposure to smoke, especially if they have asthma. Here are some ways to do this:
 - **Quit Smoking:** The best way to protect your child from smoke is to quit smoking yourself, and to prohibit other smokers from smoking in your home.
 - **Make Your Home a Smoke-Free Zone:** The next best thing is to smoke only outside (away from windows and doors to avoid smoke entering the home).
 - **Wear a Smoking Jacket:** For those that smoke, wear a different garment, a “smoking jacket or shirt,” that is worn only when outside the home smoking. The smoking jacket should be kept outside the home as well. When you are holding or cuddling a child, the child will inhale the tobacco smoke from the “smoking jacket” if it is not left outside.
 - **Wash your hands after smoking.** Tobacco smoke clings to the skin, hair, and clothes.
 - **Make Your Car a Smoke-Free Zone,** whether or not child is present. (Tobacco smoke “sticks” to the car’s interior and remains even after smoke in the air has cleared.)

PROTOCOL

Secondhand Smoke

ACTIONS

CHW Actions	Caregiver Actions
Offer cessation advice to primary caregiver, child or anyone using tobacco in the home, at every visit. Assistance should be according to smoker's readiness to quit (stage of change).	If you smoke, consider quitting. When you are ready to quit, you may contact QUITWORKS at 1-800-879-8678.
Assess needs of caregiver, child, and family members regarding cessation and behavior changes to reduce a child's exposure to secondhand smoke.	If you are not ready to quit, smoke outside and take measures to reduce children's exposure to tobacco smoke.
Discuss harmful effects of secondhand smoke.	Make your home and car smoke-free zones
If there are smokers in the house, focus on minimizing child's exposure to smoke through behavior changes.	If others in your home smoke, encourage them to quit, and do not allow smoking inside your home or in the car.
At subsequent visits, check in with the caregiver regarding progress. Congratulate successes. Reinforce importance of minimizing child's exposure to smoke and discuss barriers to progress as needed.	



TAKE-AWAY MESSAGES FOR PARENTS AND CAREGIVERS

- It is important to minimize children's exposure to smoke, especially when they have asthma.
- Quit smoking. Do not allow anyone to smoke near your child. Make home and car smoke-free zones.
- Wear a smoking jacket and keep it outside.
- Wash hands after smoking.

HANDOUTS

Handouts

- *Goals for Avoiding Exposure to Smoke*
- *Before You Light Up, Look Down Fact Sheet*
- *Want to Quit Smoking?*

REFERRALS

■ Massachusetts Department of Public Health's QUITWORKS 1-800-879-8678

Let all smokers in the house know that when they are ready to quit, there is coaching support available. This program provides personalized telephone-counseling sessions within two weeks, a Quit Kit, and nicotine-replacement patches (if appropriate). Services are offered in English and Spanish.

Goals for Avoiding Exposure to Smoke



If you smoke, enroll in a smoking-cessation program when you are ready to try and quit.



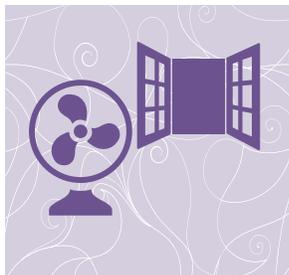
Try to avoid homes or places where people smoke.



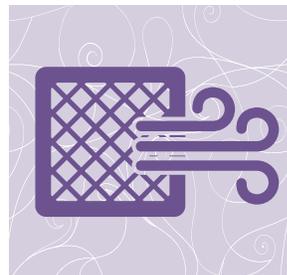
If someone must smoke inside, do so in a bedroom and keep the door closed.



Avoid riding in cars in which people smoke.



Try to increase the ventilation in the house by opening windows or running a fan.



Use an air-cleaning device with a HEPA filter to remove smoke from the air.



Do not allow people to smoke inside your home. Ask family members and guests to smoke outside.



Don't sit in smoking sections of public places.



Ask family members and guests to smoke in a room where you do not usually spend time.

From the Reducing Ethnic/Racial Asthma Disparities in Youth (READY) Study, adapted from A Guide for Helping Children with Asthma, Inner City Asthma Program a product of the National Cooperative Inner City Asthma Study.



BEFORE YOU LIGHT UP, LOOK DOWN.

Children exposed to secondhand smoke are more likely to suffer from ear infections and asthma.

Secondhand smoke hurts.

Protect your kids' health. Give them smoke-free lives.

What is secondhand smoke?

- It is smoke that comes from a burning cigarette, cigar, or pipe.
- It can make children and adults sick.



Secondhand smoke hurts kids.

- It has over 4,000 chemicals and poisons.
- It causes ear infections. Kids who breathe it have more ear operations.
- It is bad for the lungs. Kids who breathe it get coughs, bronchitis, and pneumonia more often.
- It gives kids with asthma worse attacks. They also have attacks more often.
- It can hurt pregnant women and their babies.



Secondhand smoke is never safe.

- When you breathe it, you get the same bad air that smokers do.
- Smoke stays in your clothes, hair, and home—even after a cigarette is put out.
- You can not get rid of it by opening a window, sitting away from a smoker, or using air filters or a fan.

Give your children smoke-free lives.

- Do not let anyone smoke around your kids.
- Do not smoke in your home or car.
- Ask friends and family not to smoke in your home or car.



Get **FREE** help to quit smoking at
1-800-Try-to-Stop (1-800-879-8678).
www.makesmokinghistory.org



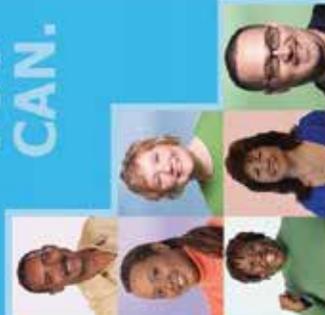
Massachusetts Department of Public Health

#TC2442 - 06/09

makesmokinghistory.org

Want to quit smoking?

YOU CAN.



Using counseling support makes you twice as likely to quit smoking.

FREE one-on-one support is available over the phone through the Massachusetts Smokers' Helpline at 1-800-QUIT NOW (1-800-784-8669). You can set up times for a quit coach to call you during your first few weeks of quitting.

In-person quit-smoking groups and one-on-one support options are also available. Find support near you at www.makesmokinghistory.org or by calling 1-800-QUIT NOW.

Your doctor, family, friends, and co-workers can also help you quit smoking. Tell them you are quitting, and ask for their support.

You CAN quit smoking.

Quitting smoking can be hard, but there are ways to make it easier.

Using quit-smoking medicines or counseling support can make you twice as likely to quit for good!

Ask your doctor about medicines to help you quit smoking. You can also ask a pharmacist about over-the-counter stop-smoking medicines like the nicotine patch.

You can get free help through the Massachusetts Smokers' Helpline at 1-800-QUIT NOW. You can also go to counseling sessions or stop-smoking groups in your area.

Ready to quit? Make sure to contact:

- ☐ Your doctor. Your healthcare provider can help you with medicines to help you quit.
- ☐ Your health plan. Your health insurance may cover medicines and counseling to help you quit.
- ☐ The Massachusetts Smokers' Helpline. For free support and advice to help you quit, call:
 - 1-800-QUIT NOW (1-800-784-8669)
 - Spanish: 1-800-8-DEJALO (1-800-833-5256)

[makesmokinghistory.org](http://www.makesmokinghistory.org)

Massachusetts Department of Public Health
 Tobacco, Cessation and Prevention Program

Your health insurance may pay to help you quit.

Many health plans help cover medicines and counseling to help you stop smoking.

For example, MassHealth covers all FDA-approved stop-smoking medicine and counseling.

Call the member information phone number on the back of your health plan card to find out what your plan covers.



"I stopped smoking so I could share more birthdays with my daughter."
 - Martha, New Bedford, Smoke-free 14 years

Have you tried to quit before?

Then you are more likely to quit for good this time!

Every time you try to quit, you learn. Most smokers have to try a few times before they quit for good. But it pays off — half of all people who have ever smoked have quit!



"Quitting has been a life-changing experience. Using group counseling and medication worked for me."

- Ramon, Lawrence
Smoke-free 2 years

Plan ahead.

1. Pick a date to stop smoking: your quit date. This is the day you will quit smoking completely. A date two to four weeks away from today will work well.
2. Use your past experience. Think about what happened in the past when you tried to quit. What will you do differently this time?
3. Know your triggers. Triggers are certain times, places, people, or feelings that make you want to smoke. Driving, coffee breaks, and boredom trigger some people to smoke. What are your triggers? How will you beat them?
4. Plan for withdrawal symptoms. When you stop smoking, you may feel sick or nervous for a few weeks. You can take medicines to help you with these symptoms.

Using a stop-smoking medicine doubles your chances of quitting for good.

These medicines can help you stop smoking. They are not addictive.

- Nicotine Replacement Therapy (NRT) includes the nicotine patch, gum, and lozenges, which are available without a prescription. NRT helps you with cravings by giving your body a small, steady amount of nicotine.
- Zyban (Wellbutrin SR) is a pill that can help with cravings and other withdrawal symptoms. You start taking it about one week before you quit smoking. Your doctor must prescribe it.
- Chantix is a pill that helps with cravings and other withdrawal symptoms. It also blocks the part of the brain that gives smoking its kick. Your doctor must prescribe it.

Prevent weight gain.

There are two proven things you can do to keep your weight down as you quit smoking: be active and eat healthy foods.

- Take the stairs, go for a quick walk, or play ball with the kids. Try a new active hobby like gardening, or get back to a sport you used to enjoy.
- Don't diet. Instead, eat plenty of fruits and vegetables. Eat smaller servings, more often. Drink more water — 6 to 8 glasses a day.
- Drink less alcohol and sugary sodas. They can make withdrawal symptoms worse and also have a lot of calories.

Try making some changes in your diet and activities before your quit date so you are not trying to make too many changes at once.

Keep trying!

Write down your reasons for quitting and look at them often.

Take one day at a time. Focus on getting through just one day — today — without smoking.

If you have smoked a cigarette, don't give up! You are not the only one who has ever done this, and it does not mean you have failed.

Talk with a friend or counselor and keep moving forward with your plan to quit.



"My life is worth more than a pack of cigarettes!"

- Mandy, Everett
Smoke-free 6 years

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Checklist



PARTICIPANT ID # _____ VISIT DATE _____

2-WEEK RECALL QUESTIONNAIRE COMPLETED YES

ASTHMA ACTION PLAN

Review *Asthma Action Plan* with family

WARNING SIGNS OF ASTHMA REVISITED PROTOCOL

Review educational messages in protocol

Review appropriate *You Can Control Asthma* booklet pages (see protocol)

MEDICATION ADHERENCE PROTOCOL

Review educational messages in protocol

Review appropriate *You Can Control Asthma* booklet pages (see protocol)

Give family the following handouts:

- *Tips for Taking Your Medicine*
- *Take Everyday Control Medications*
- *Quick-Relief Medications*
- *How to Clean Your HFA Inhaler*

ROACHES AND ASTHMA PROTOCOL

Review educational messages in protocol

Review appropriate *You Can Control Asthma* booklet pages (see protocol)

Give family the following handout:

- *Goals for Getting Rid of Cockroaches*

RODENTS AND ASTHMA PROTOCOL

Review educational messages in protocol

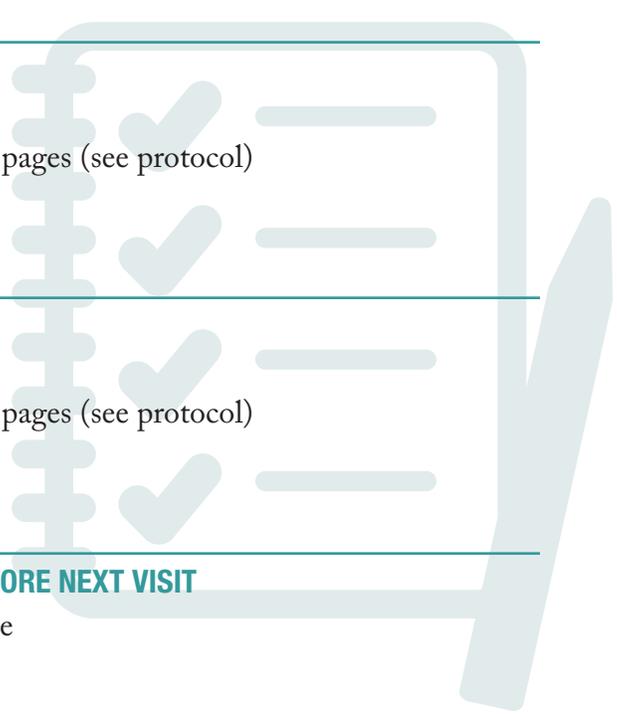
Review appropriate *You Can Control Asthma* booklet pages (see protocol)

Give family the following handout:

- *Goals for Getting Rid of Mice and Rats*

SUGGESTED ACTIVITIES FOR PARENTS/CAREGIVERS BEFORE NEXT VISIT

■ Identify family actions to reduce triggers in the home



PROTOCOL

Warning Signs of Asthma (Revisited)

STATEMENT OF THE PROBLEM

Prevention of asthma attacks is a key component of asthma management. Helping clients to recognize symptoms that are precursors to their attacks, and teaching them what to do when their warning signs occur, are vital to asthma control. Using either peak flow or symptom self-monitoring appears to increase a child's awareness of the disease status and control. Having an *Asthma Action Plan* in place is also important (Source: *Expert Panel Report*, pg. 49, 61).

BACKGROUND

- Many children have predictable feelings or symptoms for a long time before they actually have trouble breathing or have an asthma attack. It is important to keep a lookout for these symptoms daily because they can be early warning signs of an asthma attack.
- Your child's early warning signs should be written down in an *Asthma Action Plan*.
- The earlier you or your child recognize the warning signs, the earlier you can start treatment. This may avoid the need for emergency treatment.
- As soon as any warning signs occur, checking peak flow can give you more information about how bad the asthma is getting. Sometimes symptoms can appear mild, but peak flow can show that asthma is not controlled.
- The presence of early warning signs means that the child is in the Yellow Zone of the *Asthma Action Plan*.

From the Reducing Ethnic/Racial Asthma Disparities in Youth (READY) Study, adapted with permission from Dr. Jim Krieger, Seattle King County Public Health Department.



- Late warning signs mean that the child is in the “Red Zone” and needs immediate medical care. Late warning signs include:
 - Wheezing that gets worse even after rescue medicine has been given.
 - Breathing that gets faster even after rescue medicine has been given.
 - Difficulty breathing:
 - Nostrils flaring.
 - Pale skin/blue-gray color around lips.
 - Increased coughing that interferes with breathing.
 - Skin cold and sweaty.
 - Retractions of the muscles in the neck and between ribs.
 - Fast breathing.
 - Grunting or wheezing.
 - Stomach muscles tense.
- Difficulty walking or talking.
- Using both peak flow readings *and* symptoms is the best way to assess the severity of asthma. The zone of the *Asthma Action Plan* is best determined by considering both symptoms and peak flow. If either indicates the Red Zone, then the child is in the Red Zone. If neither is in the Red Zone, but one is in the Yellow Zone, then the child is in the Yellow Zone.

ASSESSMENT

- Determine if the child knows their early asthma symptoms.
- Assess the child’s knowledge of late warning signs of asthma.
- Check to see if child has an *Asthma Action Plan*.
- Check to see if the child can use symptoms to determine the zone of the *Asthma Action Plan* and what to do in response to symptoms.
- Check to see if the child has a peak flow meter and knows how and when to use it.

PROTOCOL

Medication Adherence

STATEMENT OF THE PROBLEM

Medications are used to prevent and control asthma symptoms, improve quality of life, reduce the frequency and severity of asthma attacks, and reverse airflow obstruction. Many patients do not take their medications as prescribed, for a variety of reasons. The best approach when faced with non-adherence is to work with the client so that knowledge and understanding, and the client's individual barriers to medication non-compliance, can be addressed and discussed in a non-judgmental way that normalizes non-adherence. (*Source: Appendix: Excerpt from National Asthma Campaign of Australia, pg. 7*)

BACKGROUND

- Many people with asthma do not take their medicines as prescribed, for a variety of reasons.
- Medicines work best when used as prescribed. If they are not used often enough and at the right dose, there is a good chance they will not work.
- Maintaining a non-judgmental attitude towards non-adherence is helpful in working with people living with asthma.

ASSESSMENT

Understanding the participant's beliefs and attitudes, daily schedule and situation, and keeping a non-judgmental attitude towards non-adherence are key.

- Ask in a non-judgmental way about how the participant is using asthma medicines. Use "tell me about..." instead of "why?" when asking about medication non-adherence.
 - "Many people have a hard time using asthma medications regularly in the exact way the health provider has prescribed them."
 - "There are many reasons people have trouble with this."
 - "Does your participant have any problems in taking their medicines exactly as prescribed?"
 - "How often do these problems come up?"
- If participant reports having problems, ask them what kinds of things make it hard to take the medicines as prescribed.
- Review the use of each prescribed medication, why it is being used and how often it should be taken.

Adapted with permission from Dr. Jim Krieger, Seattle King County Public Health Department



- Good control of asthma means no symptoms and no limitations on activity.
- Adherence with taking medicines is a major factor in successfully controlling asthma.
- Adherence will give participants control rather than their asthma controlling them.
- Adherence can be improved by:
 - Ensuring the participant understands asthma and its treatment
 - Keeping medicines simple
 - Communicating with providers
 - Partnering with the participant/caregiver
 - Understanding participant's concerns and barriers to adherence
- The goal is to help participants/caregivers come up with strategies that they think will work to improve adherence.
- It can be helpful for children with asthma to involve other caretakers in following the medication regimen. This should also include extended family, the child's daycare, school, or Head Start.

PROTOCOL

Medication Adherence

ACTIONS

CHW Actions	Caregiver Actions
<p>Probe into misunderstandings about correct use of medication. When to use controller versus reliever is especially important.</p> <p>Ask about:</p> <ul style="list-style-type: none">■ Cost■ Getting to the pharmacy■ Running out of medications and not having refills easily available■ Concerns about side effects■ Difficulty remembering/sticking to a schedule■ Refusing/not liking to take medicine■ Being too busy to take medicine■ Not having access to medicines when away from home.	<p>Share issues with CHW regarding taking medication.</p>
<p>Probe for other reasons/beliefs for not taking medicine as prescribed:</p> <ul style="list-style-type: none">■ Doesn't need it because he/she feels well■ Fear of becoming addicted to the medicine■ Thinking medicines don't work.	<p>Call back CHW as needed. Ask CHW to go along to provider visit or speak to the project nurse as needed, to enhance communication with the provider.</p>



CHW Actions	Caregiver Actions
<p>Ask:</p> <ul style="list-style-type: none"> ■ “How important is controlling your asthma or your child’s asthma?” ■ “Any questions about the asthma diagnosis?” ■ “How serious do you feel asthma is?” ■ “How do you feel about the medications prescribed?” ■ “Do you think these medicines work?” 	<p>Use strategies to address factors resulting in lack of adherence.</p>
<p>Problem-solve with client to find strategies to address medication non-adherence.</p>	

TAKE-AWAY MESSAGES FOR PARENTS AND CAREGIVERS

- Taking medicines exactly as prescribed is a major factor in successfully controlling asthma.
- **Controller medicines are used to prevent and control asthma symptoms. They should be taken EVERY DAY, even if there are no asthma symptoms.**
- Rescue medicines are used to treat early warning signs of asthma. They are taken only as needed when symptoms occur.
- If your child is taking a rescue inhaler more than twice per week, their asthma is not controlled properly. Call your child’s primary care provider and schedule an asthma checkup.

PROTOCOL

Medication Adherence

SUPPLIES

- *Asthma Action Plan*

EDUCATION BOOKLET PAGES AND HANDOUTS

You Can Control Asthma – Family Booklet

- What Asthma Medicines Do page 26
- Long Term Control Medicines – Inhaled Steroids page 31
- Quick Relief Asthma Medicines page 29

You Can Control Asthma – Kids Booklet

- Medicines page 26
- What Asthma Medicines Do page 34
- Taking Care of Your Inhaler page 37

Handouts

- *Tips for Taking Your Medicine*
- *Take Everyday Control Medications*
- *Quick Relief Medications*
- *How to Clean Your HFA Inhaler*

REFERRALS

- Refer to healthcare provider to encourage communication about identified medication concerns (e.g., understanding and simplifying medication plan, patient point of view, barriers to adherence).
 - Refer to pharmacist for questions regarding medications.
-



ADDITIONAL INFORMATION

How to go through the problem-solving process

- Identify problem.
- Set goals.
- Increase awareness and educate.
- Explore options and brainstorm.
- Develop a plan.
- Review benefit and barriers to carrying out the plan.

STRATEGIES BASED ON SPECIFIC NON-ADHERENCE FACTORS

Non-adherence Factor	Strategy
Cost	<p>CHW contact project nurse or clinic social worker.</p> <p>Participant can:</p> <ul style="list-style-type: none"> ■ Request samples from provider. ■ Ask about free or reduced cost medication program.
Difficulty getting to pharmacy	<p>CHW should review transportation options.</p> <p>Participant could consider alternate pharmacy.</p>
Difficulty getting refills authorized	<p>CHW should contact project nurse.</p> <p>Participant can:</p> <ul style="list-style-type: none"> ■ Remind provider to refill medications at each visit. ■ Ask how long the medicine will last when getting a prescription filled. ■ Call at least three days before medicines run out ■ Use the same pharmacy so it will have refills ready. ■ Have a reserve supply of each medicine.

PROTOCOL

Medication Adherence

Non-adherence Factor	Strategy
Too many medicines, taking medicines is too complicated	<p>CHW should discuss the possibility of simplifying the regimen with project nurse.</p> <p>Participant can talk to the provider about making things simpler, like using longer-acting medicines, which need to be taken only twice a day.</p>
Forgetting to take medications	<p>Help participant take medicines at same time each day:</p> <ul style="list-style-type: none">■ Link taking medicine to a daily activity (e.g. brushing teeth, eating a meal)■ Mark on a calendar when medicine has been taken■ Ask family members to remind the participant (e.g. parent calls child to remind them to take medicine).
Cannot find medicines when needed	<p>Keep all asthma medicines in one place (e.g., a box), and put them back right after using them.</p>
Being too busy.	<p>Try to make taking medicine part of daily routine.</p>
Not always having medicines around.	<p>Have extra inhalers so that one is:</p> <ul style="list-style-type: none">■ At home.■ With them when leaving the home.■ At each place the participant spends a lot of time.



Non-adherence Factor	Strategy
<p>Concerns about side effects</p>	<p>Commonly used asthma medicines are safe.</p> <ul style="list-style-type: none"> ■ They do not affect the heart or other organs. ■ Inhaled steroids in low-to-medium doses do not stunt growth. ■ They are not the same as the anabolic steroids sometimes used by athletes.
<p>Fears of addiction.</p>	<p>Asthma medicines are not addictive.</p> <p>They can be decreased or stopped by the provider, without side effects, as long as asthma remains well-controlled.</p>
<p>No longer needing medication because participant feels well</p>	<p>Even if a person with asthma feels well, their lungs are still abnormally sensitive to triggers and prone to inflammation (swelling and mucous congestion).</p> <p>Daily preventive medicines:</p> <ul style="list-style-type: none"> ■ Reduce sensitivity. ■ Reduce inflammation. ■ Prevent asthma symptoms from returning. <p>If preventive medicines have been prescribed, it is necessary to use them daily even when feeling well.</p> <p>Stop taking them only if your provider says to do so.</p>

PROTOCOL

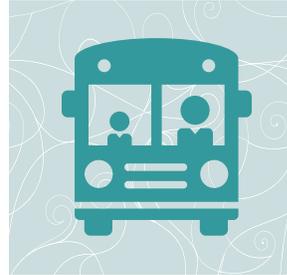
Medication Adherence

Non-adherence Factor	Strategy
Thinking medicines don't work	<p>Many studies have shown that taking daily preventive medicines can:</p> <ul style="list-style-type: none">■ Reduce asthma symptoms.■ Prevent visits to the emergency room or other urgent care facilities. <p>Parent should tell provider if they think participant's medicine is not helping.</p> <p>Provider can change the dose or type of medicine if needed.</p>
Participant doesn't always like to take medicines	<p>Explore why the participant is not taking medicine.</p> <p>Address concerns:</p> <ul style="list-style-type: none">■ Explain to the participant why the medicines are important.■ Explain to the participant how the medicines can make them feel better.■ Provide rewards to younger participant for using medications. <p>If participant doesn't like the taste:</p> <ul style="list-style-type: none">■ Try rinsing the mouth or chewing sugarless gum after using.■ For pills that are hard to swallow, try taking them with food or juice.■ Some pills may be crushed and mixed with food; caregiver should check with their pharmacist.

Tips for Taking Your Medicine



Make sure you understand your *Asthma Action Plan*.



Know what to do about your asthma while at school, work, or playing sports.



Think of ways to remember to take your medication on time.



Make sure you always have enough of your medications.



Be honest with your doctor about how often you take your medicines.



Talk with your teacher or school health care provider about your *Asthma Action Plan*. Give them a copy.



Ask your doctor about quick-relief medications and controller medications.



Learn the names of your medicines and what they do.

From the Reducing Ethnic/Racial Asthma Disparities in Youth (READY) Study, adapted from A Guide for Helping Children with Asthma, Inner City Asthma Program a product of the National Cooperative Inner City Asthma Study. Icons by Freepik.

Take Everyday Control Medications

These work to keep your airways from getting swollen and narrow.
 These medications work best when taken **every day**.



Advair

100/50	250/50	500/50
Every AM 1 Puff	Every PM 1 Puff	
45/21	115/21	230/21
Every AM 2 Puffs	Every PM 2 Puffs	

Symbicort

80/4.5	160/4.5
Every AM 2 Puffs	
Every PM 2 Puffs	

Pulmicort

90 mcg	180 mcg
Every AM 1 2 3 4 Puffs	
Every PM 1 2 3 4 Puffs	

Flovent

44 mcg	110 mcg	220 mcg	50 mcg
Every AM 1 2 3 4 Puffs	Every PM 1 2 3 4 Puffs		

Singulair

4 mg	5 mg	10 mg	4 mg granules
Take 1 every PM			

Budesonide Inhalation Solution

0.25 mg/2 mL	0.5 mg/2 mL	
Every AM 1 2 nebulizer treatments		
Every PM 1 2 nebulizer treatments		

Notes _____

These work quickly to help stop asthma symptoms that have already started. They help to **temporarily** relieve symptoms such as coughing, wheezing, chest tightness, and shortness of breath. These can be used before exercise to prevent symptoms.

Inhalers

Take up to ____ puffs
every ____ hours



ProAir



Ventolin



Combivent



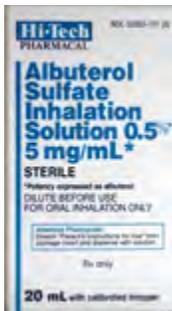
Xopenex



Proventil

Nebulizer Medications

Medication you mix



← 0.50 ml

← 0.25 ml

____ ml of Albuterol

Take one nebulizer treatment every ____ hours



saline

+



____ ampule(s) of saline

Nebulizer Medications

Already mixed medication

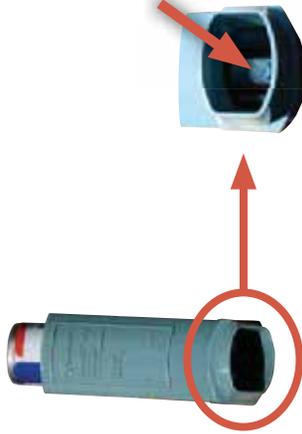
Take ____ ampule(s) every ____ hours



If your breathing is not improved after your first quick relief inhaler (or nebulizer) treatment, do the following:

Next appointment in _____ weeks, months. Always bring your asthma medicines and spacer to your asthma appointment. Ask your provider to check that you are using them correctly.

How to Clean Your HFA Inhaler



Medicine comes out of this tiny hole which can get blocked easily. The mouthpiece needs to be **clean AND dry** in order to work properly.



Mouthpiece



Medicine Canister



1. Take the medicine canister out of the mouthpiece



2. Wash the mouthpiece with warm water



3. Air dry overnight



Do NOT wash the medicine canister!



4. Replace canister and cap when the mouthpiece is dry



PROTOCOL

Roaches and Asthma



PROBLEM STATEMENT

Cockroach infestations have been indicated as a major contributor to asthma throughout the world. Cockroach allergens are derived from sources such as saliva, fecal material, secretions, cast skins, debris, and dead bodies. The association of sensitization and exposure to cockroach allergens is a major risk factor for morbidity caused by asthma in children from large cities in the United States. The cockroach allergen is one of the most prominent allergens in inner-city homes, and children who are allergic to the cockroach allergen exposed to high levels of the allergen are more likely to have unscheduled medical visits and hospitalizations. Cockroach allergy is strongly linked to socioeconomic factors and it can occur anywhere an environment favors cockroach infestation.

BACKGROUND

Cockroaches have become well-adapted to living with and near humans, and their hardiness is legendary. In light of these facts, cockroach control may become a homeowner's (or renter's) most difficult task because of the time and special knowledge it often requires. The cockroach is an allergen source and an asthma trigger for residents. The sight of cockroaches can cause considerable psychological or emotional distress in some individuals. They do not bite, but they do have heavy leg spines that may scratch. Roaches live in colonies, so if one brings back insecticide, it can kill the others.

As a group, they tend to prefer a moist, warm habitat because most are tropical in origin. Cockroaches will eat a great variety of materials, including cheese and bakery products, but they are especially fond of starchy materials, sweet substances, and meat products. Cockroaches are usually found when food is not stored properly in sealed containers, or when food waste and unwashed, accessible dishes are available. They also live off of crumbs and grease from the stove. Cockroaches also need a water source and can be found wherever leaks or condensation exist; drip pans under a refrigerator, etc. Cockroaches tend to travel at the edges of rooms. Signs of roach infestation include sightings of roaches, and stains on the walls from feces/eggs. They can live without food for two weeks. Cockroaches are primarily nocturnal. Daytime sightings may indicate potentially heavy infestations. They tend to hide in cracks and crevices (as small as the width of a dime) and can move freely from room to room, or adjoining housing units via wall spaces, plumbing and other utility installations. Entry into homes is often accomplished through

Adapted with permission from Dr. Jim Krieger, Seattle King County Public Health Department

PROTOCOL

Roaches and Asthma

food and beverage boxes, grocery sacks, animal food, and household goods carried into the home (*Source: Healthy Housing Inspection Manual*).

The use of Integrated Pest Management (IPM) is the key to the elimination of or reduction of roaches. IPM techniques are necessary to reduce the number of pests that threaten human health and property. This systems approach to the problem relies on more than one technique to reduce or eliminate pests—four Management strategies exist for controlling cockroaches.

Prevention This strategy includes inspecting items being carried into the home, and sealing cracks and crevices in kitchens, bathrooms, exteriors, and windows.

Sanitation This denies cockroaches food, water, and shelter. These efforts include: quickly cleaning food particles from shelving and floors; timely washing of dinnerware; and routine cleaning under refrigerators, stoves, furniture, and similar areas. Store pet food in tight containers, and do not leave in bowls overnight. Clean cat litter boxes regularly. Deny access to water sources by fixing any leaking plumbing, drains, or sink traps. Eliminate hiding places by purging clutter, such as stacked papers and soiled clothing and rags.

Trapping Commercially available traps can be used to capture roaches and serve as a monitoring device. The most effective trap placement is against vertical surfaces, primarily corners and under sinks, and in cabinets, basements, and floor drains.

Chemical Control The need for chemicals typically indicates that the other three strategies have been applied incorrectly. Numerous insecticides are available, and more information is available from the EPA. (Use this strategy only if sanitation and trapping fail.) (*Source: Healthy Housing Inspection Manual*.)



ASSESSMENT

Conduct this protocol if evidence of roaches is observed or reported at baseline, or if the child is allergic to roaches (determined by allergy testing):

1. Ask caregiver if he/she has observed any roach activity, especially at night.
2. Explain that roaches can be present, even if not seen.
3. Look for roach activity, and check for droppings and/or body parts.
4. Assess prior education received by caregiver and assess knowledge.
5. Assess caregiver's willingness to change behavior by eliminating cockroach attractants.
6. Explain that the next step is to see if roaches are in the home by setting up roach traps.
7. Place roach traps in the home and document the location on reporting form.
8. Give caregiver the cleaning checklist and discuss the steps needed to prepare for the roach-elimination visit.

Eradication

1. Check to see if the home has been thoroughly cleaned (see cleaning procedure below in CHW actions).
2. If any cleaning tasks remain, or if any dirt or clutter is observed, inform the caregiver that you will return when they are ready.
3. Reassess in one week to see how many roaches have been caught and the location of infestation.
4. If roaches are present either by client report, CHW observation, or trapping, conduct roach-elimination protocol.
5. Once the home is satisfactory, perform the roach-elimination protocol.
6. Apply gel and set bait stations in areas where roaches are present.
7. Return in one week.
8. Place roach traps to see if roaches are still present, even if the number of roaches has been reduced.
9. If roaches are present, advise the caregiver to again prepare for roach elimination at the next visit by thoroughly cleaning the home, and eliminating all clutter and unwanted items.

PROTOCOL

Roaches and Asthma

10. After the home has been cleaned, repeat the roach-elimination protocol, and:

- Review food-handling and cleaning.
- Check to see if all cracks are caulked and all holes are plugged.
- Check for leaky pipes and fixtures, and repair.
- Replace bait smears with new ones.
- Apply boric acid to cracks and crevices if not done previously.

Once roaches are eliminated, inform the caregiver that the house needs to be thoroughly cleaned to remove the remaining cockroach waste and allergens (refer to Cleaning Checklist under CHW actions).

EDUCATIONAL MESSAGES

- An important key to pest management is to remove places in the home for pests to hide and to eliminate sources of food and water. But remember, pesticides you may spray to prevent pests are not only toxic to pests, they can harm people too. Try to use pest management methods that pose less of a risk.
- Roaches are common indoor pests found in all types of homes. Many homes have roaches, no matter how clean they seem.
- The cockroach allergen is known to come from feces, saliva, and the bodies of these insects.
- Getting rid of roaches can help control asthma, especially if you are allergic to roaches.
- It is important to figure out why there are roaches in the home in order to help get rid of them.
- Household members can take useful measures to reduce or totally eliminate roaches from a home. Important strategies include:
 - Removing sources of water in the home by repairing leaky pipes, roofs, drains, and broken plumbing.
 - Making food inaccessible to roaches by storing food in insect-proof containers at all times.
 - Eliminating hiding places for roaches—remove clutter, and caulk/seal cracks and crevices.
 - Trapping and baiting hard-to-reach places.
- It is important to eliminate cockroaches from the entire home. Start with the kitchen and bathroom.
- For **children** with asthma
 - Clean the play and sleeping areas first.
 - Keep roach bait out of children's reach.



ACTIONS

CHW Actions

How to place roach traps:

Place traps against a wall and preferably in corners and hard-to-reach places.

Place traps near food and water sources in the kitchen, bathroom, and laundry area and if present:

- Under the sink, and in backs of cupboards.
- In back of and alongside of the refrigerator.
- In back of or beside the stove.
- In back of the toilet, washer and dryer, and under laundry tub.
- On vanity shelves.
- Near areas of moisture.
- Place traps in child's bedroom.
- Under beds, against walls.
- On closet floors.
- On shelves, or adjacent to dressers and storage boxes.

Use two to four glue traps per room, as needed.

On your records, indicate the exact location of the traps, and the date the trap was placed. If repeat trapping is necessary, new traps can be placed in the same location. Results of multiple trapping may be compared to determine effectiveness of cockroach abatement.

Caregiver Actions

Water sources:

- Repair leaky faucets, pipes, and drains.

Food:

- Store all food in sealed containers.
- Clean up food spills and crumbs immediately.
- Restrict eating to the kitchen and/or dining room table, if possible.
- Avoid bringing food into rooms other than the kitchen and dining room and discourage eating in other living areas, especially the bedrooms.
- Clean up dishes immediately after use or, if that is not possible, place them in soapy water.
- Keep inside garbage in tightly closed containers and place the garbage into an outside garbage can or dumpster every evening.
- Clean up grease and spills in the kitchen immediately, especially in and around the stove.

Hiding places:

- Eliminate clutter such as empty boxes, cans, bottles, bags, books and newspapers.
- Discard unwanted and unused clothes and personal items.
- Seal cracks in the walls.
- Repair leaks.

PROTOCOL

Roaches and Asthma

CHW Actions

It is important for the caregiver to NOT move the traps! And to NOT let children play with them, nor place them in areas where pets are present.

Caregiver must prepare for the cockroach elimination visit in order for it to be effective.

They must follow the following steps:

- Ask caregiver to prepare for roach elimination.
- Explain that when the home is clean, the roaches will be more easily attracted to the bait, and not to other food sources.
- Explain that caregiver needs to do a thorough cleaning of the home to eliminate insect harborage so that roach bait can be used.
- Advise caregiver to wear gloves for the entire cleaning procedure.
- Give the *Cleaning Checklist* to the child/caregiver. Explain that it includes:
 - Mopping the kitchen floors with detergent
 - Scrubbing all kitchen surfaces with detergent solution, including stove top and counters.
 - Vacuuming all carpeted floors
 - Scrubbing all hard floors and woodwork with detergent
 - Scrubbing all walls and insides of kitchen cabinets with detergent

Caregiver Actions

Conduct all the steps in the cleaning checklist:

- Mop the kitchen floor with detergent
- Scrub all kitchen surfaces with detergent solution, including stove top and counters
- Vacuum all carpeted floors
- Scrub all hard floors and woodwork with detergent
- Scrub all walls and insides of kitchen cabinets with detergent.



CHW Actions

Caregiver Actions

Food waste management:

Keep trash and food waste in tightly closed containers and place all garbage into the outside garbage can or Dumpster every night. Remove all visible traces of the roaches, including droppings, dead roaches, and fecal material (black or brown specks) that stain indoor surfaces.

- Vacuum up any visible roaches just before the roach elimination visit.
- Roaches can be vacuumed up with the crevice attachment.
- After vacuuming, take the vacuum cleaner outside, remove the vacuum bag, place it in a sealable bag, and discard it in the outdoor trash. Take a damp cloth and wipe down the entire vacuum cleaner.
- Always vacuum or kill any roaches you see.
- Resident should request the stove and refrigerator be moved away from the wall before any roach elimination visit.
- For gas stoves, move it out only enough to be able to reach behind it.
- For some stoves, if there is a bottom drawer, it is possible to reach under the stove if the drawer is removed.
- Empty food cabinets before the roach elimination visit and place the food in plastic bags.

Wear gloves for the entire cleaning procedure.

PROTOCOL

Roaches and Asthma

CHW Actions	Caregiver Actions
<p>How to perform roach elimination activities with the caregiver:</p> <ul style="list-style-type: none">■ Identify leaky pipes, fixtures, and drains and tell tenant the caregiver or landlord must repair them. Check back to see that this was done.■ Repair small holes by plugging around pipes with steel wool, foam, and mesh.■ Apply boric acid in cracks, and seal cracks afterward with caulking.■ Show the caregiver how to apply boric acid.■ Together with the caregiver, apply boric acid inside the cracks with applicator, such as the bulb syringe.■ With the caregiver, use a caulking agent to seal up these cracks.■ The kitchen is the top priority, followed by bathroom(s) and laundry area, and the child's bedroom(s). Ultimately, the whole home should be treated. <p>How to apply roach baits:</p> <p>Roach baits attract and kill roaches. Roaches die about one to three days after eating the bait, and it usually takes 7–10 days to notice fewer roaches.</p> <p>Show the caregiver how to apply bait, and apply smears (or 10–15 bait stations) in the kitchen:</p> <ul style="list-style-type: none">■ Under the kitchen sink.■ Behind the stove.*■ Behind the refrigerator.*■ In upper kitchen cabinets.■ In lower kitchen cabinets.■ In cabinets above refrigerator.	



CHW Actions	Caregiver Actions
<p>Also apply bait or bait stations:</p> <ul style="list-style-type: none">■ In bathroom (behind toilet, under the sink, and in the vanity); additional 5 smears (or two bait stations) per room in the bedroom, basement, living/TV room and other rooms in which cockroach activity has been observed or roaches trapped. <p>*Note: if it is not possible to get behind stove or refrigerator, sprinkle boric acid on folded cardboard or paper and slip the cardboard behind or under these appliances, away from children and pets.</p> <ul style="list-style-type: none">■ Inform child/caregivers that boric acid is poisonous and that it should only be used in cracks that will be sealed or in places inaccessible to children.■ Place bait near food and water sources, but not in places where it will get wet.■ Keep bait out of reach of children and pets.■ Tell residents NOT to move baits.■ Replace baits when they are consumed.	

TAKE-AWAY MESSAGES FOR PARENTS AND CAREGIVERS

- The key to controlling roaches in the home is to focus on prevention, sanitation, and elimination.

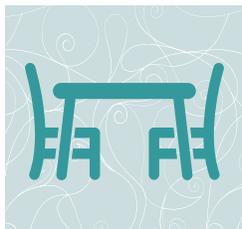
SUPPLIES

- Roach glue traps
- Copper mesh

EDUCATION BOOKLET PAGES AND HANDOUTS

- Handouts**
 - *Goals for Getting Rid of Cockroaches*

Goals for Getting Rid of Roaches



Limit eating to kitchen/dining room area.



Clean food crumbs and spills from drawers, shelves, counters, and floors in kitchen daily.



Put all opened non-refrigerated food items in sealable bags or plastic containers.



Repair leaks and dripping faucets.



Vacuum areas with carpet every week. Damp-mop areas without carpet.



Remove old newspapers and clutter daily. Take trash out or seal daily.



Clean oven, broiler, and drip pans in stove. Clean spills on top of stove daily.



Use traps or call an exterminator. Be sure the exterminator knows a person in the house has asthma.



Contact building manager about cockroach problem.



Keep covers on mattresses and pillows. Wash blankets and bedsheets every two weeks in hot water.



If you notice cockroach droppings in the bathroom, clean cabinets under bathroom sink.

From the Reducing Ethnic/Racial Asthma Disparities in Youth (READY) Study, adapted from A Guide for Helping Children with Asthma, Inner City Asthma Program a product of the National Cooperative Inner City Asthma Study. Icons by Freepik.

PROTOCOL

Rodents and Asthma



PROBLEM STATEMENT

Mice are associated with triggering asthma. The proteins in mouse urine are the main allergen, but saliva and feces can also trigger asthma. Rodent-associated diseases affecting humans also include plague, typhus, and rat-bite fever.

As a group, rodents have certain behavioral characteristics that are helpful in understanding them. They are perceptive to touch, with sensitive whiskers and guard hairs on their bodies. Thus, they favor running along walls and between objects that allow them constant contact with vertical surfaces. They are known to have poor eyesight and thought to be colorblind. Contrastingly, they have an extremely sharp sense of smell and a keen sense of taste. Rodents will gnaw through walls to gain entrance and to obtain food.

Mice are very suspicious of any new objects or food found in their surroundings. This characteristic is one reason rodents can survive in dangerous environments. This avoidance reaction accounts for pre-baiting (baiting without poisoning) in control programs. Initially, rats or mice begin by taking only small amounts of food. If the animal becomes ill from a sub-lethal dose of poison, its avoidance reaction is strengthened and a poisoning program becomes extremely difficult to complete. If rodents are hungry or exposed to an environment where new objects and food are commonly found, such as a dump, their avoidance reaction may not be as strong; in extreme cases of hunger, it may even be absent.

The presence of mice is indicated by sightings (less common), and droppings. They are attracted to food, water, shelter and warmth.

RODENT CONTROL STRATEGIES

Eliminate Food Sources To accomplish this, it is imperative for the homeowner or occupant to do a good job of solid waste management. This requires proper storing, collecting, and disposing of garbage.

Eliminate Breeding and Nesting Places Remove rubbish near the home, including excess lumber, firewood, and similar materials. Store these items above ground with 18 inches of clearance below them. At this height, these materials will not provide a habitat for rats, which have a propensity for dark, moist places in which to burrow. Wood should not be stored directly on the ground, and trash and similar garbage should be eliminated. Clear weeds, brush, and ivy.

PROTOCOL

Rodents and Asthma

Killing Program This can vary from a family cat to the professional application of rodenticides. Cats (if not an allergen to the person with asthma) can be effective against mice. Over-the-counter rodenticides can be purchased and used by the homeowner or occupant. These typically are in the warfarin groups (*Source: Healthy Housing Inspection Manual*).

BACKGROUND

Exposure to mouse urine and fecal matter can trigger asthma attacks. Studies have shown a linkage between rodent allergy and asthma symptoms. However, even after a rodent population is controlled, rodent allergens may remain, which can trigger allergic reactions in some people making a thorough cleanup necessary. Therefore, conducting an integrated pest management protocol is essential.

Conduct this protocol only in homes with rodent activity.

- Rodents can be a problem in any housing, but are a persistent problem for low-income housing and may be found in other housing throughout your town.
 - Rodents, especially mice, are found in homes more often during colder months, when they go inside to stay warm.
-

ASSESSMENT

- Assess prior education received by caregiver and their knowledge.
 - Ask caregiver if they have seen any evidence of rodent activity.
 - Look for evidence of rodent activity (e.g., droppings in crawl spaces or under sinks).
 - If rodent activity is present, record in database visit encounter.
 - Assess for caregiver's willingness to change behavior by eliminating rodent attractants.
-

EDUCATIONAL MESSAGES

- The urine, and perhaps hair, of rodents, such as mice and rats, contain allergens that can make asthma worse.
- Reducing exposure to rodent allergens is an important strategy in helping to control asthma among people with allergies to mice. This can be done in two ways:
 - Prevent mice from entering the house.
 - Remove items that attract mice, such as food, trash, and clutter from inside and outside the home.

Adapted with permission from Dr. Jim Krieger, Seattle King County Public Health Department



ACTIONS

CHW Actions	Caregiver Actions
<p>If the caregiver is a Housing Authority tenant:</p> <p>Refer local housing authority (LHA) tenants to the LHA in their community. If there is no resolution to their problem in a timely manner, consult with the project manager.</p> <p>If the caregiver is a tenant:</p> <p>Encourage the caregiver to ask the landlord to make some necessary changes as needed, such as:</p> <ul style="list-style-type: none">■ Repair of large gaps and holes, repair of broken sewer pipes, and installation of screening over vents.■ Remove outdoor rodent hiding and nesting places by cutting back bushes and removing yard debris. Rats often like to hide in ivy.■ Eliminate outdoor rodent attractants such as open garbage or compost storage, food debris, and pet feces.■ Install door sweeps or door shoes to block gaps at the bottom of doors, if necessary. <p>Consult the project manager about a support letter from the landlord requesting specific actions, if the tenant so desires.</p> <p>Assist caregiver in excluding rodents from the home and in setting up rodent traps.</p>	<p>The following actions can help prevent a rodent problem from developing or recurring:</p> <ul style="list-style-type: none">■ Keep food away from rodents so they are not attracted to the home.■ Store food in sealed containers.■ Keep garbage in closed containers.■ Clean up dishes after use or place them in soapy water.■ Clean up food spills and crumbs immediately.■ Remove rodent indoor hiding places such as empty boxes, cans, bottles, bags, and newspapers.■ Remove outdoor rodent hiding and nesting places by cutting back bushes and removing yard debris. Rats often like to hide in ivy.■ Eliminate outdoor rodent attractants such as open garbage or compost storage, food debris, and/or pet dung.

PROTOCOL

Rodents and Asthma

ASSESSMENT

- Ask caregivers if they have seen any evidence of rodent activity.
- If not, reinforce successful efforts to controlling rodent access and limiting the attraction of rodents.
- If present, record in database visit encounter.
- Look for evidence of rodent activity (e.g., droppings in crawl spaces, under sinks). If present, record in tracking system.
- If rodents are still present, review protocol above. If it has been successfully implemented, discuss referral to pest consultant with project manager.
- Use clean steel wool, foam, and mesh, or other appropriate materials to plug holes or gaps greater than a ¼ inch in diameter between construction materials and pipes or holes in walls.
- Install screens on vents that provide entry into the home (e.g., dryer vents, fan vents). Cover sharp edges of screening mesh with duct tape.
- Help caregiver set up rodent traps.

How to set up rodent traps:

- Use glue boards in accessible areas.
- Caregivers may place snap traps in crawl spaces or other areas.
- Apply bait such as peanut butter to traps.
- Place traps perpendicular to the wall, with bait end of trap against the wall.
- In areas with known rodent activity, between five and 10 traps should be deployed. Place traps closely together, three traps per foot, in a row, so that the rodents would have to step on the traps.
- Where rodent activity is not well known, traps can be spaced 10 to 20 feet apart along suspected runways.

Upon retrieval, traps should be handled with gloves, sealed in plastic bags and disposed of in sealed garbage cans.



TAKE-AWAY MESSAGES FOR PARENTS AND CAREGIVERS

The key to elimination and control of rodents in the home environment is to focus on prevention, sanitation, and trapping when necessary.

- **Prevention:** Seal openings around sink pipes and other entrances.
- **Sanitation:** Deny rodents food, water, and shelter. Quickly clean up food particles and spills from floors; wash dirty dishes; clean under the refrigerator, stove, furniture, and similar areas. Remove pet food dishes after pets eat and store unused food in closed containers. Purge clutter. Fix leaking plumbing, drains, and sink traps to deny rodents access to water.
- **Trapping:** Use traps or bait to catch and remove rodents.

SUPPLIES

- Flashlight and tools for CHW use:
 - Copper mesh
 - Traps: glue and snap types

HANDOUTS

- **Handouts**
 - Goals for Getting Rid of Mice and Rats

REFERRALS

- Landlord as indicated
- Boston Public Health Commission – Healthy Homes 617-534-5966
- Springfield Public Housing Resident Services 413-785-4500
- In case of extreme infestation, when other methods fail, CHW should consult with the project manager about obtaining help from a pest consultant.

Goals for Getting Rid of Mice and Rats



Use copper wool to seal openings around sink pipes and other entrances.



Clean food crumbs and spills from floors every day. Damp-dust all surfaces.



Keep covers on your mattresses and pillows.



Use traps or bait to catch rodents.



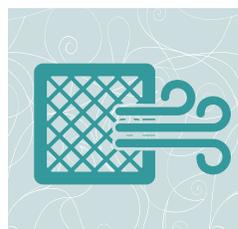
Vacuum areas with carpet every week with a vacuum cleaner. Damp-mop areas without carpet.



Contact building owner about rodent problem.



Limit eating to kitchen/dining room area.



Use an air-cleaning device with a HEPA filter to remove rodent allergen from the air.



Put all opened non-refrigerated food items in sealable bags or plastic containers.



Wash or change bedding or towels every two weeks.



Clean spills on top of stove and counters daily.

From the Reducing Ethnic/Racial Asthma Disparities in Youth (READY) Study, adapted from A Guide for Helping Children with Asthma, Inner City Asthma Program a product of the National Cooperative Inner City Asthma Study. Icons by Freepik.

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Checklist



PARTICIPANT ID # _____ VISIT DATE _____

TWO-WEEK RECALL QUESTIONNAIRE COMPLETED YES

ASTHMA ACTION PLAN

Review *Asthma Action Plan* with family

ASSESSING HOUSEHOLD PRODUCTS AND ASTHMA PROTOCOL

- Review educational messages in protocol
- Review appropriate *You Can Control Asthma* booklet pages (see protocol)
- Give family the following handout:
 - *Safe Cleaning for People with Asthma*

PEAK FLOW MONITORING PROTOCOL

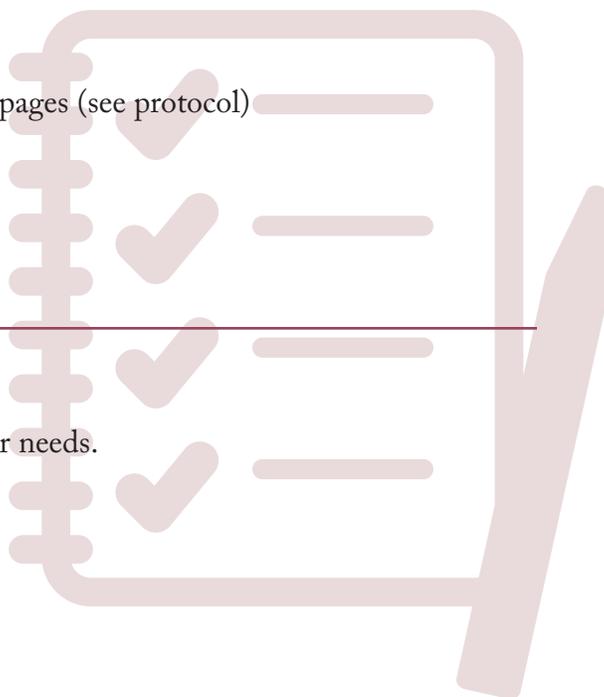
- Review educational messages in protocol
- Review appropriate *You Can Control Asthma* booklet pages (see protocol)
- Give family the following handout:
 - *Using a Peak Flow Meter*

USING AN MDI AND SPACER/DPI

- Review educational messages in protocol
- Review appropriate *You Can Control Asthma* booklet pages (see protocol)
- Give family the following handouts:
 - *How to Use an MDI Correctly*
 - *How to Use a DPI Correctly*
 - *Nebulizer*

REVIEW PROTOCOL

- Review educational messages in protocol
- Review, in depth, key topics for the family's particular needs.



PROTOCOL

Assessing Household Products and Asthma

STATEMENT OF THE PROBLEM

Some household chemicals can make asthma worse. These include lung irritants (see asthma basics), such as chlorine bleach and ammonia, solvent products (acetone and paint thinner), and products with strong fragrances or odors. It is best to eliminate these from the home.

BACKGROUND

- Review information from baseline questionnaire and walk-through.
- Tour home and repeat (Chemicals and Irritants) section in the HEC to make a list of potentially hazardous products and where they are stored. Check in tracking document which products are present.
- Ask caregiver about their use of these products. Assess prior education received by caregiver, and knowledge.
- Divide the products into higher priority and lower priority products.
 - **Higher Priority** Banned products, pesticides labeled **WARNING** or **DANGER**, pesticide dusts, cleaning products containing bleach or ammonia, solvent products used once per week or more, and any other products reported by child to trigger asthma.
 - **Lower Priority** Corrosive drain, oven, and toilet bowl cleaners; pesticide products not included in higher hazard group; solvent products used less than once per week; air fresheners; fragranced products; and volatile organic compounds (VOCs), such as gasoline, acetone and lacquer thinner, and other solvents.

EDUCATIONAL MESSAGES

- Some household chemicals can be hazardous to use or store in the home.
- Some household chemicals can make asthma worse. These include lung irritants such as chlorine bleach and ammonia, solvent products that are used frequently, and products with strong fragrances or odors. It is best to eliminate these from the home.
- Choosing less-hazardous products can help to make the home safer. If possible, avoid products marked **DANGER** or **WARNING** on the label or other products identified as high-hazard.
- Dispose of high-hazard products safely. (Refer to summary table and protocol for specific disposal instructions.)

From the Reducing Ethnic/Racial Asthma Disparities in Youth (READY) Study, adapted with permission from Dr. Jim Krieger, Seattle King County Public Health Department.



- Pesticides should be your last resort in solving home-pest problems. Try to use non-chemical methods such as traps, barriers, or mechanical removal if possible.
- **Provide caregiver with list of hazardous products present in home and instructions for disposal and alternatives.** (Use form included with the checklist to prepare list.)
- All chemical products should be kept out of reach of children and pets, either on higher shelves or in locked cabinets.
- Flammable products should be kept far away from the furnace, water heater, and other sources of heat or flame.
- Products containing chlorine bleach should not be mixed with other products.
- If hazardous products must be used, follow label directions regarding safety protection, such as goggles, gloves, and ventilation.
- Dispose of hazardous products properly. Contact the Massachusetts Department of Environmental Protection at www.mass.gov/dep or 617-929-5500 for more information on how to dispose of hazardous products.

ACTIONS

CHW Actions	Caregiver Actions
Suggest safer alternatives to hazardous products.	Remove hazardous products from home and dispose of safely, and use a safer alternative.
Educate on safe use and disposal of hazardous household products.	<p>Avoid use of pesticides and use non-chemical methods to control pests.</p> <p>Avoid use of irritants which trigger asthma.</p> <p>Move flammable products away from fire or flame sources.</p> <p>Move hazardous products out of reach of children.</p> <p>Move hazardous products stored in unsafe containers to safe, labeled ones, or dispose of safely.</p> <p>Use proper safety methods when using hazardous products, such as wearing gloves and using adequate ventilation.</p>

PROTOCOL

Assessing Household Products and Asthma

CHW Actions	Caregiver Actions
Educate on safe use and disposal of hazardous household products.	Store hazardous products outside the home (such as in a shed or garage). If you work with hazardous products at work, shower before coming home, change clothes, and wash work clothes separately.

TAKE-AWAY MESSAGES FOR PARENTS AND CAREGIVERS

- Some household chemicals can be hazardous to use or store in the home.
- Some household chemicals can make asthma worse. These include chlorine bleach and ammonia, solvent products, and products with strong fragrances or odors. It is best to eliminate these from the home.
- Dispose of hazardous products safely.

FOLLOW-UP VISITS

- Education as needed
- Review hazardous materials list
- Assist caregiver with disposal referral as needed

SUPPLIES

- Cleaning kit supplies

HANDOUT

- *Safe Cleaning for People with Asthma*

REFERRALS

- Contact the Massachusetts Department of Environmental Protection at www.mass.gov/dep or 617-929-5500 to learn about disposing hazardous products properly.

Safe Cleaning for People with Asthma

Cleaning with non-toxic cleaners is a great way to both clean your home and manage asthma. These recipes are easy, cheap and non-polluting. Here are also some suggestions for cleaning and keeping away other asthma triggers.

Clean the house when the person with asthma is NOT home if possible.

DUST

- Organize clothes and toys in clear plastic trash bags or bins.
- Wash stuffed animals in hot water and dry them on a high-heat setting. Seal toys in a plastic bag and place them in the freezer for at least five hours, or overnight, to kill dust mites.
- Wash all bedding in hot water and then dry it on a high setting every few weeks.
- Vacuum and dust with a damp cloth at least once a week, preferably with a HEPA vacuum.
- Take off shoes before entering the house. It cuts down contaminants that can be vacuumed and disbursed through the house.

AIR

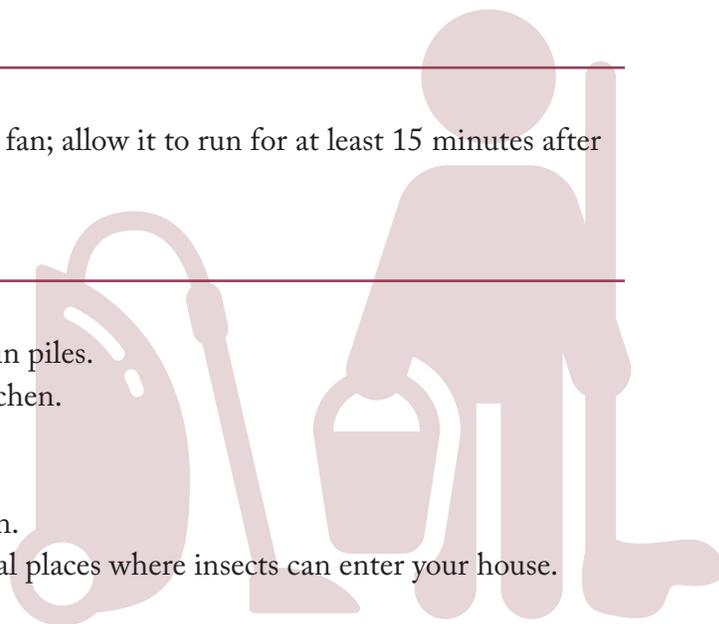
- Throw out harsh chemical cleaners and scented household cleaners. Use mild, unscented detergents for clothes and avoid fabric softeners.
- Stop using air fresheners and deodorizers.
- Do not smoke cigarettes in the home.

MOLD AND MOISTURE

- When showering or bathing, use the bathroom fan; allow it to run for at least 15 minutes after your shower, or open a window.
- Replace or wash moldy shower curtains.

PESTS

- Avoid saving boxes, paper bags, or newspapers in piles.
- Don't leave open food or dirty dishes in the kitchen.
- Keep counters free of crumbs and spills.
- Keep trash containers closed.
- Rinse recyclables before putting them in the bin.
- Do not use pesticides. Use traps or baits and seal places where insects can enter your house.



From The American Lung Association of Oregon's "Suggestions for Green Cleaning" / Icon by Freepik.

Safe Cleaning for People with Asthma

TOILET CLEANER

- Baking soda
- Liquid castile soap*

Sprinkle baking soda inside the bowl. Squeeze in a couple of drops of soap also. Scrub with a toilet bowl brush and finish outside surfaces with a rag sprinkled with baking soda.

TUB AND SINK CLEANER

- Baking soda
- Liquid castile soap*

Use baking soda in place of your scouring powder. Sprinkle it on porcelain and rub with a wet rag. Add a little soap to the rag for more cleaning power. Rinse well to avoid leaving a hazy film.

FURNITURE POLISH

Mix olive oil and white vinegar.

STAIN REMOVER

Borax, shaving cream, or hydrogen peroxide.

DRAIN CLEANER

- Baking soda
- Vinegar
- Boiling water

This recipe will free minor clogs and help to prevent future clogs. Pour ½ cup baking soda down the drain, then ½ cup of vinegar. Let it fizz for a few minutes. Then, pour a teakettle full of boiling water down drain. Repeat if needed. If the clog is stubborn, use a plunger. If the clog is very stubborn, use a mechanical snake.

OVEN CLEANER

- Baking soda
- Water
- Scouring pad

Mix 1 cup of baking soda with water to make a paste. Apply to oven surfaces, and let stand a little while. Use a scouring pad for scrubbing most surfaces. A spatula or bread knife is effective to get under large food deposits. This recipe will require “elbow grease.” Try spot-cleaning your oven regularly. Do not use this cleaner on self-cleaning ovens.

WINDOW AND MIRROR CLEANER

- Vinegar
- Water

Put ¼ cup vinegar in a spray bottle and fill to top with water. Spray on surface. Rub with a diaper or other lint-free rag, or sheets of newspaper. For outdoor windows, use a sponge and wash with warm water with a few drops of liquid castile soap in it. Rinse well and squeegee dry.



*If liquid castile soap is unavailable, Murphy's Oil Soap is a great substitute.

PROTOCOL

Peak Flow Monitoring



STATEMENT OF THE PROBLEM

Peak flow is a tool that measures how well air moves out of the lungs. *Guidelines for the Diagnosis and Management of Asthma* show that peak flow and symptom-based *Asthma Action Plans* are equally effective in adults. Peak flow monitoring for self-management of asthma may be less effective for preschool children.

Long term daily peak flow monitoring should be considered for patients who have moderate or severe persistent asthma (Evidence B), poor perception of airflow obstruction or worsening asthma, unexplained response to environmental or occupational exposures, and other symptoms at the discretion of the clinician and patient. (*Source: Expert Panel Report, pg. 120.*)

ASSESSMENT

- Check to see if peak flow monitoring is being done, and with correct technique. Watch patient as they do a peak flow reading.
- Assess patient motivation to monitor peak flow.
- Review numbers on peak flow monitoring chart.

EDUCATIONAL MESSAGES

WHAT A PEAK FLOW METER IS AND WHY IT'S IMPORTANT:

- A peak flow meter is a tool that measures how well air moves out of the lungs (large airways). This is a measurement of how asthma is affecting the lungs.
- A peak flow meter can help with asthma management.
- During an asthma episode, the airways in the lungs begin to narrow slowly. The peak flow meter can be used to determine if there is narrowing in the airways, even before symptoms appear. It can provide an early warning that asthma is getting worse.
- A peak flow meter can help determine when to start asthma medicines in order to stop the episode quickly, and avoid a serious asthma attack.
- A peak flow meter can be used intermittently, around the time of acute asthma symptoms, at the onset of an upper respiratory infection, and during any acute episodes. Long term daily monitoring should be considered for people with moderate-to-severe asthma or a history of severe asthma attacks, and for people who can't tell when their airflow is obstructed, as well as those who prefer this method of monitoring.

From the Reducing Ethnic/Racial Asthma Disparities in Youth (READY) Study, adapted with permission from Dr. Jim Krieger, Seattle King County Public Health Department.

PROTOCOL

Peak Flow Monitoring

- Long term daily monitoring should be considered for children with moderate-to-severe asthma, a history of severe asthma attacks, and children who can't tell when their airflow is obstructed.
- The peak flow measurement varies by height, sex, and age.
- Measuring peak flows is one way of monitoring asthma. Keeping track of symptoms is also important. If symptoms are getting worse, even if peak flow remains good, it is important to take action based on the *Asthma Action Plan*.

PEAK FLOW METER TECHNIQUE:

- Stand up.
- Slide button down to zero.
- Hold the meter without blocking the button or the airflow.
- Take a deep breath.
- Place the meter in your mouth, close your lips around the tube and blow one time, as fast and hard as you can, in a single blow through your mouth (not your nose).
- Find your number by looking for where the button moved.
- Repeat two times.
- Write down the highest number achieved.
- Peak flow monitoring measures airflow only in the large airways. It is highly effort-dependent.
- Measurements can be falsely high or low. Falsely high measurements may occur with coughing, spitting, or allowing the tongue to get in the way of blowing. Falsely low measurements may occur with blowing too slowly (not hard and fast), not sealing the lips around the tube, blowing through the nose, or blocking the vent or button with a finger.

Recording Peak Flow Numbers/Diary:

- Some people like to check peak flow every day to keep track of how their asthma is doing. If the peak flow starts dropping, this can be an early sign that asthma is getting worse. If you check peak flow every day:
 - Measure it at the same time every day; in the morning before taking medicines or in the evening before taking medicines. Do three measurements each time.
 - Write down the best (highest) measurement in a peak flow diary and in your *Asthma Action Plan*. Your personal best peak flow should be used as a reference value in your plan. Personal best peak flow is the highest peak flow number you can achieve over a two-week period when your asthma is under good control (no asthma symptoms).



- Compare new number with the numbers from the past week or two. If the numbers are going down, ask your health provider what to do.
- Checking peak flow numbers when asthma might be getting worse is helpful for everyone with asthma.
- Measure peak flow when you are having asthma symptoms, an asthma attack, or a cold to see how your asthma is affecting your lungs.
- Compare the number with your personal best number. If it's lower (i.e., less than 80% of the best number), then you need to take action before asthma gets worse.
- You can measure peak flow before you use your asthma medicines, and again after, to see if your medicines are helping.
- Take peak flow readings every day for two weeks to determine your best measurement.
- Check in the afternoon or evening before using your bronchodilator.
- Record time and date and highest number achieved in your diary.
- Your health care provider will want the diary with the peak flow numbers to determine your personal best.

Understanding Peak Flow Meter Numbers:

Peak Flow Zone System

- **GREEN ZONE** (>80% of personal best #/no asthma symptoms)
 - All clear. Breathing is normal. Asthma is in good control. Go-ahead on all activities. Take medicines as usual.
- **YELLOW ZONE** (50-80% of personal best #/early-warning symptoms)
 - Caution. Signals the presence or beginning of minor symptoms. Slow down. An asthma episode may be starting. Your overall asthma may not be under control. You may need to increase your medicines or your health care provider may need to change your medicine plan. Refer to your *Asthma Action Plan*.
- **RED ZONE** (<50% of personal best #/late-warning symptoms)
 - Danger/Medical Alert. A serious problem that needs immediate attention. Take rescue inhaler right away and call health care provider if peak flow reading doesn't increase and stay there. Refer to your *Asthma Action Plan*.

Knowing which zone you are in can help you make treatment decisions, and take action early to prevent or treat the problem before Red Zone emergencies.

PROTOCOL

Peak Flow Monitoring

Taking Care of Your Peak Flow Meter

- To clean the peak flow meter, wash with soap and water, rinse well, shake out excess water and dry on a clean towel.

ACTIONS

CHW Actions	Caregiver Actions
Demonstrate peak flow meter use and observe use by patient.	Use peak flow meter correctly.
Assess when and how often client uses peak flow meter.	Use peak flow meter when having asthma symptoms, when a cold develops, or during an acute episode.
Encourage use of peak flow meter if asthma symptoms are present, when a cold begins or during an acute asthma episode.	Record peak flow numbers in diary.
Demonstrate how to record peak flows in diary.	Bring diary to appointments.
Review diary to see if diary is being used properly.	Determine your personal best peak flow number.
Review entries in diary (or ask patient how peak flows have been, if no diary is available). If readings are frequently (more than twice a week) less than 80% of personal best, let the primary care provider know. Demonstrate how to determine zone of peak flow measurement and assess client's understanding. Review care and cleaning of Peak Flow Meter.	Keep meter clean.



TAKE-AWAY MESSAGES FOR PARENTS AND CAREGIVERS

- A peak flow meter is a tool that measures how well air moves out of the lungs.
- It can be used to tell you if your child’s airways are getting narrow even before symptoms appear.

FOLLOW-UP VISITS

- Review use of peak flow meter and completing the action plan accurately.

SUPPLIES

- *Asthma Action Plan*

EDUCATION BOOKLET PAGES AND HANDOUTS

You Can Control Asthma – Family Booklet

- *The Peak Flow Meter* pages 20-24

You Can Control Asthma – Kids Booklet

- *Your Peak Flow Meter* pages 19-24

Handouts

- *Using a Peak Flow Meter*

REFERRALS

- To child’s primary provider for asthma care, if necessary.

Using a Peak Flow Meter

WHAT IS A PEAK FLOW METER?

A peak flow meter measures how well you are breathing. It is something you blow into that lets you know how much air is moving in and out of your lungs.

- “Peak” means the most.
- “Flow” means amount you can breathe out.
- “Meter” means something that measures.

WHY DO I NEED IT?

You may know the signs when your asthma is getting worse. But sometimes it’s hard to know how bad your asthma really is. The peak flow meter gives you a number that lets you know how well you are breathing. You can tell your health care provider the number you got and how you are feeling. Your health care provider will know whether or not to change your medicine.



HOW DO I USE IT?

It is easy!

1. Set the arrow at zero.
2. Stand up.
3. Remove gum or anything else that might affect the reading.
4. Take a deep breath in.
5. Close your lips tight around the tube and blow one hard, quick breath into the mouthpiece.

It’s important to blow your hardest.

CHECK YOUR PEAK FLOW NUMBERS TWO TIMES EVERY DAY FOR AT LEAST TWO WEEKS. HERE'S HOW:

1. Blow into your peak flow meter as instructed.
2. Write down the number by the arrow on a piece of paper.
3. Blow two more times into the mouthpiece and write down those numbers.
4. Circle the highest of the three numbers. Write the highest number in the Peak Flow Calendar below. That's your first "number of the day."
5. Do this twice a day—every morning at the same time and every night at the same time—for at least two weeks. Checking your numbers for a month is even better.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Morning _____ Night _____						
Morning _____ Night _____						
Morning _____ Night _____						
Morning _____ Night _____						

Using a Peak Flow Meter

SOMETIMES IT'S EASIER TO REMEMBER A POEM. TRY THIS:

Set at zero and give a quick blow. See the number? Well, what do you know! Do it twice more, now which one is greater? Write it all down and look at it later!

WHAT HAPPENS AFTER TWO WEEKS?

Figure out your Green Zone

1. Look at the calendar you kept.
Write down your overall highest score.
This becomes your personal best number.
It stands for the most you can breathe out.
2. Now figure out 80% of that score. This is your Green Zone score.

To figure out your Green Zone score, multiply the score by 0.8. If you're not sure how to do this, ask someone to help you.

Green Zone Score Example	Your Green Zone Score
Best blow score: 300	Your best score: _____
80% = 300 x .8	x .8
80% score: 240.0	Your 80% score: _____

3. So now you have your "80% score." Next, look again at all the scores for the two weeks. Any scores higher than the 80% score means you're in the Green Zone.

Green means "all clear, you're doing well."
This is your "GO" zone.

You'll figure out your Red Zone scores next. Then you can figure out your Yellow Zone scores, too.

Figure out your Red Zone

4. Now divide your overall highest score by 2.
That's your "50% score."

Any scores lower than the 50% score mean that you're in the Red Zone.

Red means "medical alert."

STOP and call your health care provider right away.

Red Zone Score Example	Your Red Zone Score
Highest score: 300	Your best score: _____
÷ 2	÷ 2
50% score: 150	Your 50% score: _____

Figure out your Yellow Zone

- Now that you have your Green Zone and Red Zone scores, you can figure out your Yellow Zone. The Yellow Zone peak flow scores are less than 80% (Green Zone) and more than 50% (Red Zone). They are the scores in the middle. Be sure that you have a Yellow Zone plan. Know what medicines to take.

Yellow Zone Score Example	Your Yellow Zone Score
80% Score: 240	Your 80% score: _____
50% Score: 150	Your 50% Score: _____
Yellow Zone: 240 – 150	Your Yellow Zone: _____

WHAT DO I DO WITH MY SCORES?

Take your scores to your health care provider. You can write down your scores here:

GREEN ZONE SCORES:

YELLOW ZONE SCORES:

RED ZONE SCORES:

Your health care provider will make an asthma management plan with you and your family. This way, you will know what to do if you are in the yellow or red zone. Your health care provider may want you to change how much medicine you take or the type of medicine you take.

PROTOCOL

Using an MDI and Spacer/DPI

STATEMENT OF THE PROBLEM

One of the goals of asthma management is to deliver medication effectively. The use of a spacer helps to deliver the medication from a metered dose inhaler (MDI) more effectively into the lungs. Proper technique is important when using either an MDI or Dry Powder Inhalers (DPI).

ASSESSMENT

- Check to see if child is using a spacer or holding chamber when using MDIs.
 - Assess prior education received by client and client's knowledge.
 - Have child demonstrate MDI (using spacer/holding chamber) and/or DPI technique.

EDUCATIONAL MESSAGES

- Breathing asthma medicines into the lungs is one of the safest and most effective ways of taking asthma medicines. MDIs or DPIs are the most common ways of getting asthma medicines to the lungs.

MDIs

- A spacer, or holding chamber, is a device that attaches to a MDI. It makes using a MDI easier.
- You don't need a spacer for dry powder inhalers.
- Use a spacer or holding chamber with each of your MDIs, every time you use one.
- The use of a spacer or holding chamber with the MDI helps more of the inhaled medicine get to the lungs where it is needed to help asthma. Less of the medicine ends up on the tongue or back of the throat.
- The spacer or holding chamber holds the medicine long enough for you to take a big breath and inhale the medicine deeply.

From the Reducing Ethnic/Racial Asthma Disparities in Youth (READY) Study, adapted with permission from Dr. Jim Krieger, Seattle King County Public Health Department.



- The spacer or holding chamber helps you not cough when using your MDI.
 - Proper MDI technique includes:
 1. Stand up.
 2. Shake the MDI a few times to mix medicine.
 3. Attach the MDI to the spacer.
 4. Breathe out completely.
 5. Place spacer in your mouth, close mouth tightly around it.
 6. Press MDI to release one puff of medicine into the spacer.
 7. Breathe in slowly and deeply.
 8. Hold your breath for the count of 10.
 9. If you are supposed to take a second dose, wait 1 minute, then repeat.
 - To keep the spacer clean, wash with soap and water, rinse well, and let dry on a clean towel.
 - Take care of your inhalers:
 - Don't store them in the car or other hot places.
 - Discard them when they expire and get new ones.
 - Keep them in a box in the same place so you can always find them.

DPIs

- Proper DPI technique includes:
 1. Stand up.
 2. Click the disk or wheel as instructed, to prepare for the next dose of medicine.
 3. Breathe out.
 4. Place mouthpiece in mouth with lips sealed around it.
 5. Breathe in deeply and forcefully.
 6. Hold breath for the count of 10.
 7. If your provider recommends you take a second dose, wait 1 minute, and then repeat.
- A spacer or holding chamber is not necessary with a DPI. Medicine is automatically inhaled when a breath is taken.

PROTOCOL

Using an MDI and Spacer/DPI

ACTIONS

CHW Actions	Caregiver Actions
Demonstrate correct use of MDI with Spacer/Holding Chamber.	Demonstrate correct use of MDI with Spacer/Holding Chamber. Consistently use Spacer/Holding Chamber with MDI.
Demonstrate correct use of DPI (if prescribed for patient).	Demonstrate correct use of DPI (if using). Keep Spacer/Holding Chamber clean.

TAKE-AWAY MESSAGES FOR PARENTS AND CAREGIVERS

- A spacer helps to deliver the medication from a metered dose inhaler (MDI) more effectively into the lungs.
- A dry powder inhaler (DPI) and a discus inhaler each deliver medication to the lungs as you inhale through the device. They do not contain propellants or any other ingredients. They contain only the medication.
- A nebulizer is used with a machine that compresses air to deliver liquid medicine. The nebulizer cup holds the medicine and has a mouth piece and tubing that is attached to the compressor. The nebulizer cup can also be used with a face mask.

SUPPLIES

- Spacer – with and without a mask
- MDI trainer
- DPI trainer

HANDOUTS

- *How to Use an MDI Correctly*
- *How to Use a DPI Correctly*
- *Nebulizer*

How to Use an MDI and Spacer



1. Take the cap off the inhaler

2. Shake the inhaler

3. Attach to spacer

4. Take the cap off the spacer



5. Breathe **OUT** all the way

6. Close lips around mouthpiece

7. Press down here

8. Breathe **IN** slow and deep



9. Hold your breath for 10 seconds if you can. Then breathe out slowly

If you need another puff of medicine, wait 1 minute then repeat steps 5-9

10. Rinse with water and spit OUT

How to Use an MDI and Spacer (with Mask)



1. Take the cap off the inhaler



2. Shake the inhaler



3. Attach to the spacer



4. Sit up straight, place mask over nose and mouth



5. Press down here. This puts medicine into the spacer



6. Breathe in and out six times



If you need another puff of medicine, wait one minute then repeat steps 4-6



7. Rinse with water and spit out





How to Use Your DPI (Dry Powder Inhaler)



Pulmicort



1. Twist bottom like this to remove cap



2. Here is the cap and the mouthpiece



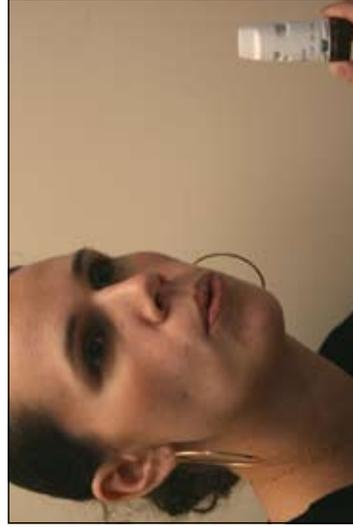
3. Hold the mouthpiece



4. Twist bottom this way



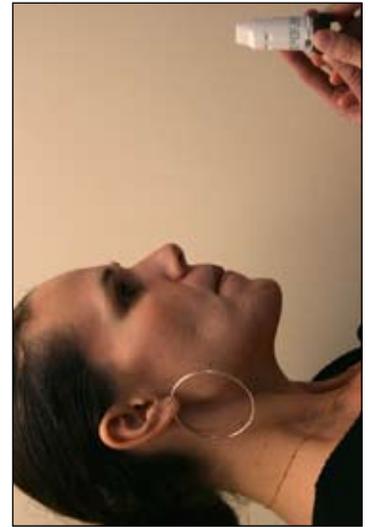
5. Then back this way to hear "click"
Now the inhaler is ready to use



6. Breathe **OUT** and **AWAY** from inhaler



7. Put lips around mouthpiece Breathe **IN** fast and deep



8. Hold your breath for 10 seconds if you can



9. Rinse with water and spit **OUT**



10. Put cover back on, twist to close

How to Use Your Nebulizer



Neighborhood
Health Plan™



1. Wash your hands



2. Put nebulizer machine on flat, steady surface



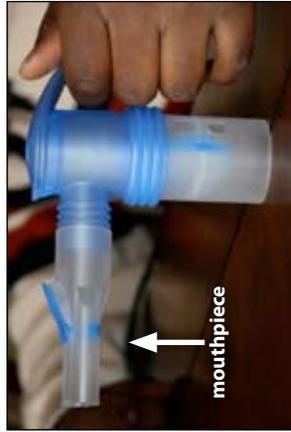
3. Plug into outlet



4. Connect one end of tubing to the nebulizer



5. Add medication



6. Attach mouthpiece to the medication holder



7. Connect the other end of the tubing to the medication holder



8. Turn on the nebulizer machine



WRONG! Do NOT hold mouthpiece in front of face



9. Put lips around mouthpiece. Take **slow, deep** breaths through your **MOUTH**



10. When finished, wash parts in soapy water and rinse



11. Allow parts to air dry

How to Use Your Nebulizer (With Face Mask)



1. Wash your hands



2. Put the nebulizer machine on a flat, steady surface



3. Plug into outlet



4. Connect one end of the tubing to the nebulizer

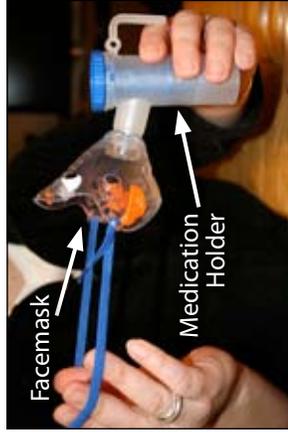


Albuterol



Saline

5. Add medicine **and** saline
OR
Add premixed medication alone →



Face mask

Medication Holder

6. Attach facemask to the medication holder



9. Place facemask over nose and mouth. Take **slow deep** breaths through your **MOUTH**



WRONG! Do NOT hold in front of face



7. Connect the other end of the tubing to the medication holder



8. Turn on the nebulizer machine



10. When finished, wash parts in soapy water and rinse



11. Allow parts to air dry

Nebulizer

What is a nebulizer?

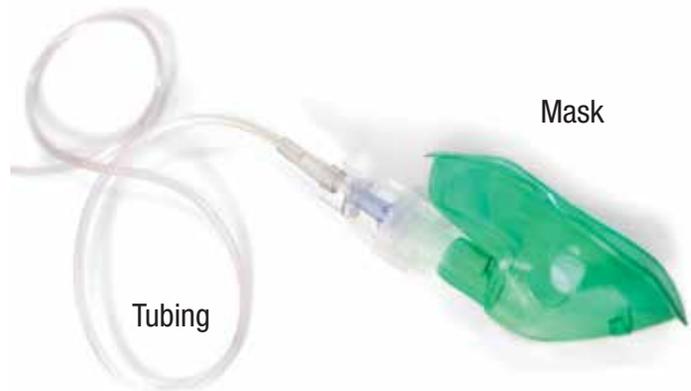
It is a device that helps you take your liquid medicine. The nebulizer is the mouthpiece or mask that delivers the medicine into your mouth in a very fine mist. The cup holds the medicine. The compressor looks like a machine and supplies the power to make it work.

Why do I need it?

The nebulizer sends the medicine straight into your lungs. This is an easy way to get the medicine to the right place.

The parts

Standard Compressor



Tubing

Mask



T-piece

Cup

Dome

Mouthpiece

PROTOCOL

Review



ASTHMA BASICS

CHW Actions

- Using the airway model, review normal airway and compare to airway showing asthma.

Key messages

- Asthma is a chronic illness. It can't be cured, but it can be managed.
- Good asthma control means no symptoms day or night, participating in all activities, no emergency room visits, hospitalizations, or missed school/work.
- Asthma affects the airways or breathing tubes.
- Asthma triggers can narrow and swell the airways, and result in mucus production.
 - This swelling blocks the airways and makes it hard to get air into and out of the lungs.
 - This causes asthma symptoms: wheezing, coughing, shortness of breath, and/or chest tightness.

ASTHMA TRIGGERS

CHW Actions

- Review list of child's known asthma triggers.
- Emphasize the importance and benefits of identifying, eliminating, and controlling exposure to asthma triggers.

Key messages

- Triggers are things that can bring on asthma symptoms.
- Exposure to triggers can cause swelling and narrowing of the airways and increased mucus production.
- Knowing what triggers asthma symptoms allows you and your child to take action to keep them away.
- Identifying, eliminating, and controlling asthma triggers can improve asthma symptoms.

From the Reducing Ethnic/Racial Asthma Disparities in Youth (READY) Study, adapted with permission from Dr. Jim Krieger, Seattle King County Public Health Department.

PROTOCOL

Review

ENVIRONMENTAL TOBACCO SMOKE

CHW Actions

- Emphasize that smoking harms not just the smoker but also family members, coworkers, and others who breathe the smoker's cigarette smoke.
- Emphasize that children living with smokers are more likely to develop pneumonia, colds, cough, flu, sore throats, and ear infections.

Key messages

- **Quit smoking:** The best way to protect your child from smoke is to quit smoking yourself, and to prohibit others from smoking in your home.
- **Make your home a smoke-free zone:** The next best thing is to smoke only outside (away from windows and doors to avoid smoke entering the home).
- **Wear a smoking jacket:** Smokers should wear a different garment, a “smoking jacket or shirt” that is worn only when smoking outside. When you hold or cuddle a child after smoking, the child will inhale tobacco smoke from clothing, unless you leave the smoking jacket outside.
- **Wash your hands after smoking:** Tobacco smoke clings to the skin, hair, and clothes.
- **Make your car a smoke-free zone,** whether or not the child is present. Tobacco smoke sticks to the car's interior and remains there even after smoke has cleared.



ROACHES

CHW Actions

- Emphasize the important key to pest management is to remove places in the home for pests to hide and to eliminate sources of food and water. But remember, pesticides you may spray to prevent pests are not only toxic to pests, they can harm people too. Try to use pest management methods that pose less of a risk.
- Roaches are common indoor pests found in all types of homes. Many homes have roaches, no matter how clean they seem.
- The cockroach allergen is known to come from feces, saliva, and the bodies of these insects.
- Getting rid of roaches can help control asthma, especially if you are allergic to roaches.
- It is important to figure out why there are roaches in the home in order to help get rid of them.

Key Messages

- Household members can take useful measures to reduce or totally eliminate roaches from a home. Important strategies include:
 - Removing sources of water in the home by repairing leaky pipes, roofs, drains, and broken plumbing.
 - Making food inaccessible to roaches by storing food in insect-proof containers at all times.
 - Eliminating hiding places for roaches—remove clutter, and caulk/seal cracks and crevices.
 - Trapping and baiting hard-to-reach places.
 - It is important to eliminate cockroaches from the entire home. Start with the kitchen and bathroom.
- For children with asthma
 - Clean the play and sleeping areas first.
 - Keep roach bait out of children's reach.

PROTOCOL

Review

RODENTS

CHW Actions

- The key to elimination and control of rodents in the home environment is to focus on prevention, sanitation, and trapping when necessary.

Key messages

- **Prevention** Seal openings around sink pipes and other entrances.
- **Sanitation** Deny rodents food, water, and shelter. Quickly clean up food particles and spills from doors; wash dirty dishes; clean under the refrigerator, stove, furniture, and similar areas. Remove pet food dishes after pets eat and store unused food in closed containers. Purge clutter. Fix leaking plumbing, drains, and sink traps to deny rodents access to water.
- **Trapping** Use traps or bait to catch and remove rodents.

HOUSEHOLD PRODUCTS

CHW Actions

- Reinforce correct use of cleaning products and proper disposal of hazardous materials.
- Suggest safe alternatives to harsh chemical cleaners.

Key messages

- Some household products hold chemicals that can make asthma worse. It is best to eliminate these from the home.
- Baking soda, white vinegar, and borax are safe and effective for household cleaning.



ASTHMA ACTION PLAN

CHW Actions

Reinforce key messages about the *Asthma Action Plan* including:

- An *Asthma Action Plan* tells you:
 - What medicines to take
 - When to take them
 - How much to take
 - When to get help

Key messages

- An *Asthma Action Plan* can tell you what to do when asthma symptoms occur.
- **Green Zone**
 - In the Green Zone: breathing is good, no cough or wheeze, sleeping through the night without asthma symptoms, no limitation on activities.
 - Take Green Zone (controller) medicine every day.
 - Your child should have NO symptoms or limitations on activity.
 - Child is feeling well.
- **Yellow Zone**
 - In the Yellow Zone: first sign of a cold, cough, mild wheeze, tight chest, coughing, wheezing, or trouble breathing at night.
 - Continue Green Zone (controller) medicines every day.
 - Add Yellow Zone (rescue) medicine every 4-6 hours as needed for cough/wheeze. CALL your child's primary care provider if symptoms do not go away after taking rescue medicine.
- **Red Zone**
 - In the Red Zone: medicine is not helping, breathing is hard and fast, the nose opens wide, ribs show, and the child can't talk well.
 - Give rescue medicine as prescribed on child's *Asthma Action Plan*.
 - Get help from a doctor NOW!
 - Call 9-1-1 to get to the nearest emergency room (ER).

PROTOCOL

Review

ASTHMA MEDICINES

CHW Actions

Reinforce ideal that taking medicines exactly as prescribed is a major factor in successfully controlling asthma.

Key messages

- **CONTROLLER medicines** are used to prevent and control asthma symptoms. They should be taken EVERY DAY even if there are no asthma symptoms.
- **RESCUE medicines** are used to treat early warning signs of asthma. They are taken only as needed when symptoms occur.

EARLY WARNING SIGNS

CHW Actions

Reinforce that being aware of early symptoms and treating symptoms early can prevent the need for emergency treatment.

Key messages

- Taking medicines exactly as prescribed is a major factor in successfully controlling asthma.
- Controller medicines are used to prevent and control asthma symptoms. They should be taken EVERY DAY, even if there are no asthma symptoms.
- Rescue medicines are used to treat early warning signs of asthma. They are taken only as needed when symptoms occur.
- If your child is taking a rescue inhaler more than twice per week, their asthma is not controlled properly. Call your child's primary care provider and schedule an asthma checkup.

Community Health Worker
Pediatric Asthma
Home Visiting Program
Protocol Manual

