



**The**  
**champs**  
Community Healthcare for Asthma Management  
and Prevention of Symptoms  
**Manual**

**A How-to Guide on the Implementation of  
the CHAMPS Intervention**

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## ABOUT THE CHAMPS MANUAL

This Manual provides detailed information and instructions on how to conduct the CHAMPS intervention. Practices implementing the CHAMPS intervention should refer to the Manual as their guide for how to complete all phases of the intervention.

The Manual contains a variety of helpful resources, including:

- summary information about CHAMPS
- advice and considerations for planning to implement the CHAMPS intervention
- instructions for conducting the intervention
- asthma and environmental education information for Asthma Counselors
- education handouts for patients
- questionnaires and forms used in the program

Refer to the Table of Contents for a complete list of the resources included.

The Manual serves as a companion piece to resources available on the [CHAMPS Intervention](#) and [CHAMPS eLearning Videos](#) sections of the [Asthma Community Network website](#).

Please note that we have made every effort to provide accurate links to content within this Manual and to external resources. Overtime, links to external content may become outdated or broken. Links to external resources were valid as of October 2015.

## WHAT IS CHAMPS?

Community Healthcare for Asthma Management and Prevention of Symptoms (CHAMPS) is a family-centered, patient-tailored evidence-based pediatric asthma intervention. The CHAMPS intervention combines asthma counseling and in-home mitigation of environmental triggers for patients with poorly controlled or moderate-to severe asthma in primary care settings.

The CHAMPS intervention began as a research study conducted in three Federally Qualified Health Centers (FQHCs) to assess whether evidence-based interventions for asthma could be successfully replicated in the primary care setting. As seen in the results the CHAMPS intervention demonstrated marked improvement the control of patient's asthma, an increase in patient and caregiver's awareness and understanding of asthma, and a reduction in asthma-related visits to urgent care and emergency departments.

The CHAMPS intervention is effective for – and can be tailored to fit – any primary care practice where pediatric asthma is common. The CHAMPS intervention can be phased in over time, starting with a smaller population of eligible patients served by a particular care team or practice. Use this [checklist](#) to find out if the CHAMPS intervention will be effective and feasible for your practice.

The information and tools available in each section are based on evidence from a diverse set of health centers with differing patient populations and resources to help each practice discover the best path to successful implementation. Explore these pieces to learn more about how you can implement the CHAMPS intervention in your practice.

Learn more about implementing guidelines based care in this brief [CHAMPS eLearning video](#).

## BACKGROUND

The CHAMPS intervention is based off of the [National Cooperative Inner-City Asthma Study \(NCICAS\)](#) and the [Inner-City Asthma Study \(ICAS\)](#), which were funded by the National Institutes of Health to study pediatric asthma in the inner city. Both NCICAS and ICAS demonstrated that providing patient-tailored behavioral and environmental interventions in high-risk, inner-city populations can lead to improved asthma outcomes.

Although NCICAS and ICAS were successful, the findings from these clinical trials had not been replicated in a real-world setting. The CHAMPS study systematically investigated the process of adopting, integrating, implementing, and diffusing a minimum set of evidence-based interventions (derived from NCICAS and ICAS) for the management of childhood asthma, using a case study design that combined qualitative and quantitative methods.

The CHAMPS study adapted components of NCICAS and ICAS and tested the feasibility of implementing these adaptations in three Federally Qualified Health Centers, building on asthma care practices that were already in place in the individual clinical settings selected for the study.

Learn more in the [Approach and Methods section](#).

## STUDY PARTNERS

### Funders

CHAMPS was funded by the [Merck Childhood Asthma Network, Inc. \(MCAN\)](#), a nonprofit 501(c)(3) organization, with support from the [RCHN Community Health Foundation](#).

### Research Collaborators

Researchers from [George Washington University Milken Institute School of Public Health](#) and [Rho](#), a contract research organization, coordinated the program and conducted the research with support and oversight from MCAN and RCHN.

### Participating Research Practices

CHAMPS would not be possible without the participation of six Federally Qualified Health Centers, who acted as research and implementation practices for the project. Three of the six FQHCs served as interventions sites and collaborated with the Research Collaborators to design and develop the project. The remaining three practices acted as control practices.

### Intervention Practices

- [El Rio Community Health Center](#) - Tucson, AZ
- [Cherry Health](#) - Grand Rapids, MI
- Costa Salud Community Health Centers - Rincón, PR

### Control Practices

- [Mariposa Community Health Center](#) - Nogales, AZ
- [Center for Family Health](#) - Jackson, MI
- [Camuy Health Services Inc](#) - Camuy, PR

## PROGRAM DESIGN

The CHAMPS study took place through a multidisciplinary, collaborative effort between a [team of experts](#) in the fields of asthma, patient health, health policy, epidemiology, and health services.

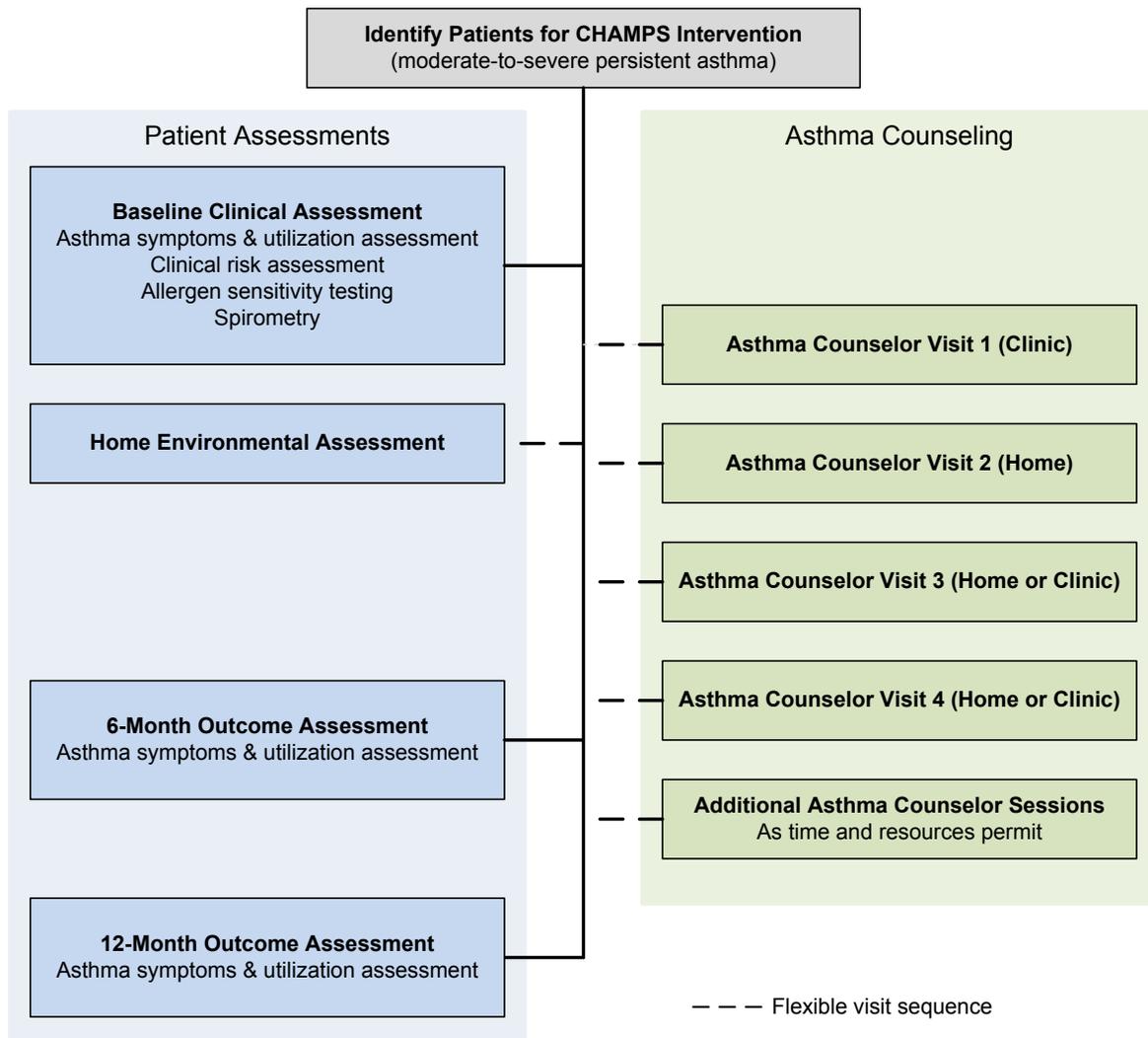
The CHAMPS study evaluated the clinical- and cost-effectiveness of an intensive, evidence-based childhood asthma counseling and environmental intervention for pediatric asthma patients ages 5-12, with not-well/poorly controlled, moderate-to-severe persistent asthma.

The intervention is both practice- and home-based and is patient-tailored, family-centered, and environmentally-focused.

As outlined in the diagram below, the CHAMPS intervention consists of three types of patient interactions:

- Patient identification
- Patient assessment visits
- Asthma counseling visits

### CHAMPS Program Overview



## APPROACH AND METHODS

CHAMPS was conducted as a two-phase program consisting of a research component and an intervention dissemination component.

### PHASE I – Research

#### *Summary*

The first phase of CHAMPS was a translational and implementation research study designed to assess whether evidence-based interventions for asthma could be successfully replicated in a health center setting. CHAMPS focused on evaluating:

- the process of adopting, integrating, and adapting evidence-based childhood asthma interventions within routine health center practice
- the clinical- and cost-effectiveness of the implemented intervention for pediatric patients with not-well/poorly controlled, moderate-to-severe persistent asthma when translated into a real-world primary care setting.

CHAMPS was implemented in three Federally Qualified Health Centers (FQHCs) over four years. The study demonstrated that tailored, evidence-based asthma management programs can be feasibly implemented, improve clinical outcomes, and achieve cost-savings in real-world settings like health centers, where many patients and families most in need get care.

The background of CHAMPS and rationale for the study design and approach are described in more detail below.

#### **Background**

##### **Previous Asthma Studies for High-Risk Populations**

CHAMPS was based off of two successful and highly-regarded asthma clinical trials funded by the National Institutes of Health – the [National Cooperative Inner-City Asthma Study \(NCICAS\)](#) and the [Inner-City Asthma Study \(ICAS\)](#). NCICAS and ICAS demonstrated that intervening in a high-risk, inner-city population can lead to improved asthma outcomes long-term. These interventions attempted to translate asthma knowledge into skills and behavioral changes to reduce asthma morbidity. Both studies provided **environmental education and supplies**, such as mattress and pillow covers, in addition to delivering a **comprehensive, individualized intervention** based on risk assessment of medical care, adherence, caregiver/self-management, psychosocial factors, and asthma attitudes. These studies showed that interventions tailored to families’ needs – including health education, self-management, and environmental remediation – were successful in reducing days with asthma symptoms, allergen levels in the home, asthma-related hospitalizations, and other asthma-related health care visits (e.g., unscheduled practice visits).

##### **Asthma Care in Federally Qualified Health Centers (FQHCs)**

Federally Qualified Health Centers (FQHCs) are well-established and widely recognized community-based providers of quality, comprehensive, primary care for some 20 million patients across every state and territory in the U.S., making them the largest network of primary care providers in the nation. Many FQHCs are also actively engaged in research, not only as a way to enhance the services they provide and to increase their recognition as centers of excellence, but also as a means to reduce disparities in their communities. FQHCs are also early adopters of innovations, including evidence-based interventions and best practices, and aim to share generalizable knowledge and lessons learned with other health centers

in order to spread documented benefits to other similarly situated populations. These traits made FQHCs an ideal partner for this community-based research study.

While FQHCs have been historically involved in asthma quality improvement initiatives “within their four walls,” little is known about the feasibility and effectiveness of implementing evidence-based childhood asthma management interventions that extend into the community, such as the interventions proven in NCICAS and ICAS. These interventions ensure **individualized treatment and management** for the patient by determining what exposures and sensitization the patient has in order to deliver a patient-tailored intervention encompassing health education, counseling, and environmental remediation in the home and, when necessary, ensuring screening and referral of the patient to necessary primary and special services care.

## **CHAMPS Study Design**

### ***Overview***

The CHAMPS study adapted components of NCICAS and ICAS and tested the feasibility of implementing these adaptations in three FQHCs, building on asthma care practices that were already in place in the individual clinical settings selected for the study. CHAMPS researchers made some slight adjustments from NCICAS/ICAS protocols for this study. For example, NCICAS and ICAS utilized both Community Health Workers (bilingual residents from the community) and Social Workers to deliver the counseling portions of the intervention; for CHAMPS, the composition of the counseling and home visiting team were flexible, and decisions regarding staffing were left to the discretion of participating health centers.

### ***Purpose***

The purpose of the CHAMPS study was to systematically investigate the process of adopting, integrating, implementing, and diffusing a minimum set of evidence-based interventions for the management of childhood asthma, using a case study design that combines qualitative and quantitative methods.

### ***Research Approach***

The CHAMPS study utilized a concurrent embedded mixed-methods multiple case-study design, relying on both quantitative and qualitative data to examine the process (primary aim) and effectiveness (secondary aim) of intervention implementation. CHAMPS researchers selected 3 “intervention” FQHCs representing a gradation of capacity, experience with providing asthma care, and variation in state/territory and local policy and programmatic environments. These 3 “intervention” FQHCs were matched with 3 “comparison” FQHCs located within the same region of each respective state but outside the intervention practices’ respective service areas. The intervention and comparison FQHC dyads shared similar organizational and patient characteristics and together represented an individual “case”, for a total of 3 study cases.

### ***Data Collection***

Quantitative, self-reported patient-level outcome measures (i.e., asthma symptoms and asthma-related healthcare utilization), were collected from patients enrolled at both intervention and comparison practices at baseline, 6-months, and 12-months, alongside information on household characteristics and demographics, to facilitate clinical- and cost-effectiveness analyses. Qualitative data, including baseline and follow-up center-level interviews with counseling staff, pediatricians, health center managers/coordinators, IT staff, and health center leadership, multiple points of practice-level observation, and other relevant implementation documentation (e.g., practice reported implementation progress reports, Asthma Counselors logs, program management meeting minutes) were collected over the course of the study. These qualitative sources, alongside traditional measures of intervention “fidelity” (e.g., intervention visit completion), were used to examine the implementation process,

including “why” and “how” certain implementation decisions were made, the “context” within which they were made, and external and internal barriers and facilitators to implementation success at health center intervention practices. We also conducted informational baseline and follow-up practice visits with comparison practices in order to track any asthma care related activities at the center before and during the study period.

### ***Patient Eligibility Criteria***

Participating health centers (intervention and comparison) were each asked to enroll 100 patients into the CHAMPS study (for a total of 600 participants; 300 intervention and 300 comparison) meeting the below criteria:

Patients ages 5-12

- With a diagnosis of asthma
  - a. Whose asthma is not-well/poorly controlled
  - b. Determination made using a set of screening questions on asthma symptoms and utilization
- Who are willing to undergo an allergen skin test or IgE blood test
- Who are willing to participate in practice and home-based asthma counseling visits

### ***Results***

The CHAMPS intervention demonstrated significant improvement the control of patient’s asthma compared to control, an increase in patient and caregiver’s awareness and understanding of asthma, and reduction in asthma-related visits to urgent care and emergency departments.

### **Phase II – Intervention Dissemination**

The second phase of CHAMPS is a dissemination program designed to provide instruction on how to implement the CHAMPS intervention in other health centers. This Manual and the materials on the dissemination website [insert URL to website] were created to fulfill the dissemination objective. These resources provide the instruction and tools you need to implement the CHAMPS intervention in your health center or practice.

## IS IT EFFECTIVE AND FEASIBLE FOR OUR PRACTICE?

Complete the checklist below to see if your practice is likely to benefit from implementing the CHAMPS intervention.

Does your practice and community experience a significant burden of patients with asthma?	Yes   No
Are you interested in strengthening your reputation among peers and patients for high quality asthma care?	Yes   No
Are you interested in implementing a practice improvement that also counts toward recognition as a patient-centered medical home and meets a meaningful use requirement?	Yes   No
Are you interested in implementing a practice improvement that potentially helps you meet maintenance of certification requirements?	Yes   No
Would your payers or other stakeholders value a reduction in inappropriate ED use among your patients with childhood asthma?	Yes   No
Would your staff be excited about improving the processes of asthma care in your practice?	Yes   No
Are you interested in learning how to improve your patients' home environments to reduce their exposure to asthma triggers?	Yes   No

If you answered "Yes" to one or more of the questions above, your practice may be an ideal candidate to implement the CHAMPS intervention.

The CHAMPS intervention is effective for – and can be tailored to fit – any practice or patient population where pediatric asthma is common.

Implementing CHAMPS strengthens practice teams, builds capacity to manage patient populations through targeting patients who benefit from elimination or amelioration of environmental triggers, and builds patient and caregiver self-management skills. This also means that CHAMPS further develops your practice as a patient-centered health home.

The health centers that participated in the CHAMPS research study were **Federally Qualified Health Centers (FQHCs)** in three states/jurisdictions. FQHCs share a model of care but experience different geopolitical environments, contextual and organizational features, and varying levels of experience with conducting asthma interventions. Despite these differences, each practice was able to adopt and adapt the intervention to meet the needs of their organization and patient population.

Depending on the practice's resources and capacity, the CHAMPS intervention may be accomplished with current clinical teams with proper training and design of care processes. The CHAMPS intervention can also be phased in over time, starting with a smaller population of eligible patients served by a particular care team or practice. The information and tools on the website are based on evidence from a diverse set of health centers with differing patient populations and resources to help each practice discover the best path to successful implementation.

## IMPLEMENTATION PROCEDURES OVERVIEW

The materials in this section serve as a guide for implementing the CHAMPS intervention in your practice. Follow the links below to learn more about each aspect of the intervention.

1. [Planning for Success](#) – Plan ahead to ensure the CHAMPS intervention is successful in your practice
2. [Setting up your Practice](#) – Prepare your practice to conduct the CHAMPS intervention
3. [Identifying and Engaging Patients](#) – Find the patients who are most likely to benefit from the CHAMPS intervention and learn how to keep them engaged throughout the intervention
4. [Conducting Patient Assessments](#) – Conduct the Baseline Clinical Assessment, Home Evaluation, and Follow-up visits at 6-months and 12-months
5. [Conducting Asthma Counseling](#) – Provide family-centered, patient-tailored asthma counseling

## PLANNING FOR SUCCESS

Successful implementation of a family-centered, patient-tailored, evidence-based intervention like CHAMPS requires careful planning. The resources in this section will provide your practice leadership with factors to consider as they plan to adopt the CHAMPS intervention.

To learn more about these elements click on the links below:

1. [Conducting a Successful Intervention](#) – Define success criteria and identify the factors that lead to success
2. [Establishing an Implementation Team](#) – Create a team to oversee the implementation of the CHAMPS intervention at your practice
3. [Conducting a Cost-Effective Intervention](#) – Learn about the cost-effectiveness evaluation conducted in CHAMPS and develop a plan for sustainable funding

## CONDUCTING A SUCCESSFUL INTERVENTION

### Criteria for Success

The most direct measure of success in the CHAMPS intervention is an improvement in patient asthma health outcomes. This is measured by comparing results of the [Asthma Symptoms and Utilization: Baseline questionnaire](#) at the first patient visit with the results of the [Asthma Symptoms and Utilization: Follow-up questionnaire](#) at the 6-month and 12-month visits.

The CHAMPS intervention can also lead to many other direct and indirect improvements in your patients and practice, such as:

- **Patient engagement** – Families demonstrate a willingness to take an active role in managing their asthma, which leads to proactive (preventive) rather than reactive disease management
- **Improved asthma knowledge throughout the practice** – Physicians and care teams can provide the highest quality, guidelines-based care for asthma
- **Asthma Counselor certification** – Asthma Counselors pursue formal certification, which bolsters their practice's credibility as an asthma care leader
- **Practice recognition** – Practices to gain positive publicity by highlighting their efforts to improve asthma in their community via the CHAMPS intervention

### Predictors of success

A variety of factors influence the success of a family-centered, patient-tailored, and evidence-based intervention like CHAMPS, including engaged leaders, the presence of an Asthma Champion, and practice-wide communication. These success predictors are described in detail below.

#### ***Engaging Leaders and Practice Staff***

First, **engaging leaders is crucial**. Leaders include both practice leadership (e.g., CEOs, Medical Directors) and physician leaders. Programs like CHAMPS often create or require organizational changes that are challenging to accomplish without leadership support. These changes may include restructuring existing workflows to accommodate a team-based care structure and referral system and/or hiring or reorganizing staff to identify the right personnel for each role or responsibility. Center leaders also set organizational aims and goals. Engaging leadership in improvement efforts raises awareness of new programs/practices, ensures that implemented services are in line with leadership's vision for the organization, and increases the likelihood that new practices/programs will be sustained. In addition, engaging leaders promotes an engaged staff – Clinicians and administrators take cues from leadership and set their own priorities on the guidance that leaders provide.

**Engaging Clinicians** is also essential in ensuring success. Engaged Clinicians view asthma counseling and other related services as essential components of comprehensive asthma care. Clinicians engaged in asthma management improvement programs better support the implementation of new processes by promoting:

- Systematic referral to the Asthma Counselor
  - Clinicians often form the initial link between patient and Asthma Counselor
  - Engaged Clinicians are incentivized to consistently refer their asthma patients to the Asthma Counselor for additional services

- Buy-in from patients
  - Patients value Clinician guidance
  - Engaged Clinicians do a better job promoting new asthma programs/services to their patients
- Effective communication between Clinician and counselor (coordinated care)
  - Truly coordinated asthma care relies on systematic and consistent communication between Asthma Counselor and physician
  - Engaged Clinicians are more likely to share patient information between members of the care team and invite feedback from Asthma Counselors
- Reinforcement of messages delivered by the counseling team
  - Physician visits offer an additional opportunity for asthma education
  - Engaged Clinicians that communicate with Asthma Counselors on a regular basis are better equipped to discuss specific asthma management concerns and emphasize key messages

Learn more about physician engagement in this brief [CHAMPS eLearning video](#).

### ***Identifying and Maintaining an Asthma Champion (Team)***

An **asthma champion** may be a single individual who consistently works toward improving asthma care and outcomes or may be a **team of champions** who work together in support of this common goal.

An **effective asthma champion team** displays:

- Content expertise
- Credibility with Clinicians
- Credibility with patients and their families
- Direct lines of communication to senior leadership
- Decision-making authority
- Connections with clinical, political, business, or other asthma-relevant networks in the community

Successful practices rely on both ground-level and managerial champions, each with different spheres of influence and qualities that allow them to coordinate efforts to ensure a successful asthma intervention. For example, an **Asthma Counselor** may be more in touch with the day-to-day needs of asthma patients and their families and can articulate these needs to senior leadership, who can make the appropriate changes within the organization to ensure them. A medical director with significant work experience in asthma care may also be an asthma champion, but without the support of the Clinicians, Asthma Counselors, and other medical staff may not be able to implement change in an effective way. Thus, a champion team must combine different strengths and abilities to champion their unified cause.

### ***Communication Throughout the Practice***

Going hand-in-hand with the concept of an asthma champion team, another key element of success is **communication** across multiple levels of the practice. Effective communication across all members of the care coordination team (e.g., Clinicians, Asthma Counselors, medical assistants, receptionists) facilitates truly coordinated care, both for asthma and for other chronic conditions.

Asthma Counselors must develop strong collaborative relationships with Clinicians. Clinicians should feel comfortable referring patients to Asthma Counselors, and Asthma Counselors should be able to assist Clinicians by anticipating a family's needs before an appointment and keeping the Clinician apprised of particular issues. The clinical staff must also enjoy open lines of communication with leadership,

whether through a nursing or medical director or through a direct relationship with leadership. Communication must be systematic and consistent – across all levels of staff positions – in order to be effective.

### ***Balancing Quality of Care with Business Interests***

Finally, **leaders must balance quality of care interests with business interests**. New programs are more readily implemented and sustained when leaders can build a business case for their adoption. Asthma management improvement efforts promote the business interests of primary care practices by:

1. helping the organization establish a reputation as an innovator that offers enhanced, high quality care and as a center of excellence for a certain disease, which in turn helps keep existing patients and helps attract others in the community, as well as attracting new sources of funding
2. allowing patients to manage their asthma within the primary care practice, reducing or eliminating the need to refer to external specialists
3. shifting the majority of asthma visits towards more planned visits and fewer urgent visits, which improves the predictability patient flow and scheduling
4. adding insurance-reimbursable services like spirometry and skin testing
5. preparing the organization for shifts in reimbursement and healthcare delivery structures, which can allow the center to capitalize on the current movement towards pay-for-performance, shared savings, and case management, as well as align efforts to increase the use of patient-centered medical homes and accountable care organizations

### **Overcoming Barriers**

Even the most well-prepared and well-equipped practices may encounter barriers during implementation of an intervention.

#### ***Research Project vs. Practice Change***

One potential challenge that centers may face is the tendency for staff, especially at the leadership level, to view interventions like CHAMPS as **temporary research projects**, rather than **practice-level change**. When interventions are not considered a type of practice change, staff or leadership are not considering how the intervention may align with the organization’s strategic mission for clinical care or how it may be applied to achieve personal leadership goals. This in turn leads to a lack of ownership or accountability, as there may be a perception that work on this project is only temporary and that staff do not therefore need to immerse themselves in all aspects of the program. Practices can overcome this barrier by starting, at the leadership level and trickling down, to understand how the intervention not only impacts their day-to-day operations but also how it can help the practice in the long term. For example, staff members may gain additional skills by learning new techniques for patient care. Leadership can envision an enhanced reputation that the practice can gain – either establishing the center as a center of excellence or bolstering its reputation as a center of excellence if one already exists – or building new opportunities for funding and reimbursement that were not previously available. This, in turn, will allow for more staff stability, as well as more institutionalized support for the program.

#### ***Establishing a Culture of Teamwork & an Effective Asthma Champion Team***

Work in practices can become somewhat siloed, where nurses interact mainly with other nurses and physicians interact mainly with other physicians, except where their job functions require interactions with other practice staff. Without this fluid communication, each group may start to develop a sense of

distance from other members of the organization, which in turn causes communication breakdowns not only for long-term implementation of the intervention but also for individual patient care. Practices can address this barrier, in part, by identifying an asthma champion (or asthma champion team) who is positioned at the nexus of leaders, Clinicians, and staff and can “speak the language” of these different groups. This individual (or team of individuals) should hold credibility with their colleagues and be given decision-making authority. This will enable them to institute practice-level changes that support a more team-based approach to asthma care. In turn, this fosters a **culture of teamwork** at the practice.

## **Assessing Ongoing Success**

Assessing the ongoing success of an intervention helps keep the project on track, both in the short term and the long. Below are some general guidelines that can be used as measures of success. However, it is important to tailor any type of evaluation plans to the specific needs of the practice.

### ***Program Implementation***

Assessing the status of the program from an implementation perspective involves assessing both logistical aspects of the program and fidelity to the intervention design. First, determine whether the intervention is proceeding on schedule, and if not, try to identify the cause of the delay. Successful practices must be able to make changes to program implementation in real time. Second, assess intervention fidelity. Are the number, timing, and location of asthma counseling visits in line with the planned number, timing, and location? Are visits being effectively tailored to individual patient needs, or are all patients receiving the same information, regardless of sensitivities? Are supplies being provided in an effective and efficient way? Third, monitor the overall budget and supply usage. If more money is being spent than originally anticipated, determine whether cuts can be made without sacrificing program integrity; for example, if patients are receiving more than one of the same supply because it is lost or used improperly, consider charging patients a nominal fee (e.g. \$5) to help recover costs and to emphasize the value of the equipment to them. If less money is being spent than originally anticipated, examine where the shortfalls lie. Are enough supplies being distributed? Are enough Asthma Counselor visits taking place? While some of these measures can be tracked in a generic dashboard (widely available online), it is important to begin with the measures that make the most sense for the individual practice, rather than starting with a generic project management template that may not fit the needs of the program.

### ***Stakeholder Experience***

Consider the experience of key stakeholders as the program takes place. An engaged staff working in collaboration is key to success (see Predictors of Success and Overcoming Barriers). Therefore, it is important to assess staff experience throughout the project, not just at the end. Assessing staff satisfaction can be accomplished in a number of ways, from more formal surveys (through anonymous online platforms such as SurveyMonkey) to quick check-ins at staff meetings or one-on-one meetings between staff and their managers. Similarly, it is also important to assess patient and family satisfaction with the program. Brief, anonymous surveys distributed at pre-determined intervals (e.g. every other visit, every 6 months) can provide an overall summary of how patients and their families perceive the program. Informal communication from patients to Asthma Counselors or Clinicians can also be very useful to document as it becomes available.

### ***Program Outcomes***

Finally, tracking program outcomes, such as symptom improvement or utilization, throughout the program can contribute to the overall picture of the program’s effectiveness. Measuring outcomes throughout the program is useful for several reasons. First, if outcomes are not changing at all from

baseline, that may be an indication to examine other aspects of the program, such as fidelity to the asthma counseling visit plans. It may also indicate other issues within the practice, such as a lack of communication between Clinicians and Asthma Counselors. Second, measuring outcomes during the program will be useful for providing additional data at the end of the program; measuring symptom improvement at three or more points in time can describe a trend, rather than a change from one point to another. Finally, preliminary outcome measures may be useful in communications with board members, funders, or other stakeholders interested in the long-term success of the project. Providing measureable data that can be communicated to external entities may help ensure long-term sustainability of the program.

## ESTABLISHING AN IMPLEMENTATION TEAM

Get off to a good start with CHAMPS by creating an implementation team to plan, and oversee, the execution of the CHAMPS intervention in your practice.

The implementation team creates a vision of what the improved childhood asthma system will look like after implementing the CHAMPS intervention. The team also monitors progress and spreads the successful changes to other practices in the practice. The team meets routinely to assess implementation progress and measures of success.

Before forming a team, solicit the approval and support of the practice's leadership to implement the CHAMPS intervention.

Form a team that includes experts in focus areas needed for successful and comprehensive practice improvement focused on the care of patients with asthma. The minimum recommended team members include:

- **Asthma Champion** – advocate for high quality asthma care throughout the organization
- **Asthma Counselor** – case manager for patients with asthma who provides one-on-one patient-tailored counseling and care
- **Information Technology Lead** – technical lead who can oversee the integration of the CHAMPS processes and tools into the various electronic management systems at use in the practice

Add additional members to the team who represent other key stakeholders in the practice. Read more about other key roles in the [Staff Roles and Personnel section](#).

Once the team is formed, follow these 3 steps to get started:

1. Define the team's aim and what the team expects to accomplish, including measures of success; refer to the [Conducting a Successful Intervention section](#) for more information
2. Develop a thorough understanding of [current childhood asthma guidelines](#)
3. Establish a strategy to begin implementing the CHAMPS practice changes

## CONDUCTING A COST-EFFECTIVE INTERVENTION

Demonstrating the cost-effectiveness of evidence-based asthma counseling interventions is essential for the practices that adopt them and for the larger policy environment in which they do business.

Sustaining an intervention like CHAMPS requires financial resources, in addition to an engaged staff and leadership. For long-term sustainability, practices may wish to engage in a dialogue with health plans and state payers about amending current billing practices to cover these types of services or to bundle payments. However, the specific payer-practice relationship may vary widely within states and across states based on multiple factors, including state reimbursement policies and Medicaid agency regulations. Practices may wish to pursue other types of funding either to start or to continue this type of intervention.

The materials in the subsequent section provide more information about sustainable funding models at all levels (Federal, State, and Local). Each funding model referenced includes a brief case study and considerations for developing an Action Plan.

Also refer to the [Value Proposition resources](#) available on the Asthma Community Network website.

## SUSTAINABLE FUNDING MODELS FOR ASTHMA INTERVENTIONS IN THE FQHC SETTING

### Federal

Federal funding for asthma interventions is available through several agencies and mechanisms.

#### ***Center for Medicare & Medicaid Innovation (CMMI)***

Established through the Affordable Care Act, the CMMI is tasked with testing innovative service and payment models that reduce program expenditures, while “preserving or enhancing the quality of care” for Medicare or Medicaid beneficiaries.

#### **Case Study: New England Asthma Innovations Collaborative**

Funded by CMMI in July 2012, the New England Asthma Innovations Collaborative (NEAIC) creates an “innovative asthma marketplace” for several states in New England. The NEAIC will train health care workers and asthma educators to provide care in practices and in patient homes to manage asthma and tackle environmental triggers. Over a three-year period, NEAIC aims to provide care to over 1400 patients (ages 2-17) meeting certain criteria for moderate to severe asthma. At the end of the grant award period, NEAIC partners will seek to sustain these methods through pilot reimbursement programs with payers.

#### **Creating an Action Plan**

CMMI has funded two rounds of Innovation Awards and has not announced plans to fund additional awards. However, there may be opportunities to work with existing grant recipients even if another round of funding does not take place. The CMMI website includes an [interactive map](#) that allows you to filter by state and category – check to see what programs are happening in your state and consider them for potential partnerships.

#### ***Environmental Protection Agency (EPA)***

Because of the strong link between air quality and asthma, the EPA funds asthma-related programs across 10 geographic regions in United States.

#### **Case Study: Putting on AIRS (Connecticut)**

Through a small grant from the EPA, two large cities in Connecticut implemented an existing asthma intervention called AIRS (Asthma Indoor Risk Strategy). The program provides asthma self-management training and home visits for patients in these cities.

#### **Creating an Action Plan**

Visit the EPA website for your region to see funding opportunities and learn about [existing asthma programs](#). See the [Organization Chart](#) to determine which region corresponds to your state.

## ***Centers for Disease Control and Prevention (CDC)***

The CDC supports disease prevention efforts across the country through a variety of mechanisms.

### **Case Study: Montana Department of Public Health and Human Services (DPHHS)**

The Montana DPHHS received an award from the CDC in 2012 that teaches self-management skills to patients and adolescents with asthma and assesses environmental triggers in the home.

### **Creating an Action Plan**

Visit [www.grants.gov](http://www.grants.gov) for a continually updated list of available grants, which can be sorted by government agency and type of entity that is eligible to apply. Read more about the [program in Montana](#).

## ***Department of Housing and Urban Development (HUD) Healthy Homes***

In 1999, HUD created its Healthy Homes program to “protect patients and their families from housing-related health and safety hazards.” Through this program, HUD provides grant support to a variety of entities, including not-for profits, for-profit firms, state and local governments, federally recognized Indian Tribes, and colleges and universities. Qualifying activities include direct remediation of housing-related hazards that contribute to patients' diseases and education and outreach activities to protect patients from housing-related hazards.

### **Case Study: Multnomah County programs (Oregon)**

Multnomah County Oregon has received two Healthy Homes grants, one in 2005 and one in 2010, to help patients with asthma and other environmental health conditions. Under the first grant award, a nurse served as a case manager, and a community health worker provided an environmental intervention for low-income patients with asthma. Under the second grant award, a community health worker served as a case manager for low-income patients with asthma and other environmental health conditions. The second grant also included Medicaid reimbursement for encounters with the community health worker and an environmental health specialist.

### **Creating an Action Plan**

Healthy Homes grant announcements can be found on [www.grants.gov](http://www.grants.gov). You can also view [abstracts for previously funded programs](#) in your region at.

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## **State**

At the state level, several options exist for developing a sustainable funding plan. These include working with the state Medicaid office to expand coverage in one or more ways, working with existing state resources funded by federal programs, or working with other state entities that may be related to healthy living.

## ***Medicaid Section 1115 Demonstrations (Waivers)***

States can use waivers (officially called Section 1115 Demonstrations) to expand eligibility for coverage, provide coverage for services not typically covered under Medicaid, and/or use innovative systems that

improve efficiency and delivery of services. Waivers are generally approved for five years, with an option to renew at the end of the five-year period.

### **Case Study: MassHealth Bundled Payment Pilot Program**

Massachusetts presents an example of a waiver program designed to cover this type of asthma intervention. The waiver covers patients (ages 2 through 18) with high-risk asthma who receive care at one of the pilot practices included in the program. The pilot program will undergo two phases: the first will provide coverage of non-traditional services, including home visits and supplies, and the second will create a bundled payment system based on lessons learned during the first phase. [Learn more about this program.](#)

### **Creating an Action Plan**

[Learn more about applying for a waiver.](#)

### ***Medicaid State Plan Amendment (SPA)***

When states apply to participate in the federal-state partnership that is Medicaid, each state must submit a State Plan that details the way services will be covered, among many other issues. A state may amend its State Plan (through a State Plan Amendment, or SPA) at any time, and unlike section 1115 waivers, there is no need to renew or reapply once a SPA is approved. SPAs may be completely new programs or may be based off of successful waivers (i.e. converted from a waiver into a SPA).

### **2014 Medicaid Prevention Regulation**

Historically, Medicaid has limited coverage for preventive services to those provided by a licensed clinical provider (generally a physician). However, starting January 1, 2014, states will now be able to provide coverage for preventive services recommended by a licensed clinical provider. This regulation means that states may amend their State Plan to include services covered by an Asthma Counselor outside of the clinical setting.

### **Creating an Action Plan**

[Learn more about submitting SPAs.](#) An SPA that addresses this Medicaid regulation must include a summary of qualification for practitioners who are not physicians or other licensed practitioners. [Learn more about the differences between SPAs and waivers.](#)

### ***Medicaid Health Homes***

Through a provision of the Affordable Care Act, states may create Medicaid Health Homes to improve care integration and coordination for beneficiaries with: (1) two or more chronic conditions, (2) one chronic condition and at-risk for a second, or (3) one serious mental health condition. To encourage states to create Health Homes, the federal government will provide an enhanced federal match rate (FMAP) of 90% for the first two years. As of June 2015, 19 states have taken advantage of this option, with at least seven specifically covering populations with asthma.

### **Case Study: Oregon**

Oregon's Health Home model includes "community health workers, personal health navigators, and peer wellness specialists" as eligible health home providers. It also includes "capacity for referral to community and social support services, such as patient and family education, health promotion and prevention, and self-management support efforts."

## **Creating an Action Plan**

States must create a State Plan Amendment (SPA) in order to create Health Home. [Learn more about creating a Health Home SPA in your state.](#)

## ***Early Periodic Screening, Diagnosis, and Treatment (EPSDT) Program***

The EPSDT program provides comprehensive preventive services for patients covered by Medicaid. EPSDT regulations allow states to cover health education, including information about asthma management and trigger reduction in the home, during a clinical (“well-patient”) visit. However, there are no restrictions that limit education to the clinical setting; any provider licensed by the state may be able to provide these services. States may be able to consider broadening the benefits covered under EPSDT.

## **Creating an Action Plan**

[Learn more about EPSDT and its requirements.](#)

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## **Local**

A variety of resources may exist at the city or county level in your state. Local entities offer the advantage of targeting a very specific population with similar access to resources and potentially similar health concerns.

## ***Managed Care Organization (MCO) Contracts***

Most FQHCs have at least one contract with a MCO. These contracts can be negotiated (or re-negotiated) to cover multicomponent asthma interventions.

### **Case Study #1: Monroe Plan (New York)**

Starting in 2002, a New York state Medicaid MCO plan (Monroe Plan for Medical Care) began covering specialty clinical care, case management services, educational materials, home environmental assessments, and supplies for reducing exposure to environmental triggers for patients with asthma. The plan also provided parking passes and arranged taxicab transportation for families visiting asthma specialists. The reduction in hospitalizations and ED visits saved the plan \$1.48 for every \$1 spent ([learn more](#)).

### **Case Study #2: Molina Healthcare Inc. (New Mexico)**

Molina Healthcare of New Mexico and the state Medical Assistance Division negotiated a 2-year renewable contract, beginning in 2005, which allowed community health workers to invoice for services. During the 2-year contract period, emergency room visits and prescription use were reduced significantly, providing significant cost-savings to the plan. Based on the results of this trial contract, the plan expanded the program from a single urban area to 13 counties and has served as a model for two other MCOs in the state to contract for CHW services ([learn more](#)).

### **Creating an Action Plan**

MCOs may be particularly interested in cost reduction and return on investment. Consult members of the financial team at your practice and examine current contracts with MCOs and contracts with other MCOs in the state before coming up with a proposal to reduce costs for MCOs that can be included in your contract. As with Molina of New Mexico, a contract that proves efficient for one MCO may encourage additional health plans to adopt similar strategies.

### ***Existing Asthma Coalitions & Known Stakeholders***

Local stakeholder groups may already exist in your county or city. These groups are likely to take a wide range of forms, from groups of clinically trained professionals to parents of patients with asthma. These types of coalitions can offer support for asthma initiatives, either in the form of monetary support or grassroots organizing.

#### **Case Study: Chicago Asthma Consortium (Chicago, IL)**

In Chicago, Illinois, a group of interested stakeholders have formed the [Chicago Asthma Consortium](#). One of its goals is to “link patients, caregivers and the broader community to asthma research, education and other resources available to appropriately diagnose and better manage asthma.” The Coalition charges a small membership fee to fund its programs, which include continuing education programs for clinical professionals.

### **Creating an Action Plan**

The Chicago Asthma Consortium is just one example of many state and local programs that bring together stakeholders interested in reducing the burden of asthma on a community. Health centers may be able to develop relationships with these groups that will be mutually beneficial. For example, if a stakeholder group wishes to receive updates on novel approaches to asthma management, key partners in the group can donate money to develop a small program that covers the cost of in-home interventions performed by Asthma Counselors; in exchange, these Asthma Counselors can provide presentations (that could potentially qualify for continuing education credits) to the stakeholders on the efficacy and challenges of the particular intervention.

### ***Local Government Agencies***

Besides the local health department, many local government agencies may have an interest or an ability to reduce childhood asthma in the community. Developing partnerships across agencies can help pool resources and reduce burdens not only on public health programs but other city programs as well.

#### **Case Study: Breathe Easy at Home (Boston, MA)**

Several city agencies in Boston have pooled their resources to create a web-based portal that allows clinical providers to refer patients with asthma for housing inspections if the provider suspects that housing conditions may be worsening a patient’s asthma. The program brings together public health, medical, and housing officials in the community ([learn more](#)).

### **Creating an Action Plan**

Contact your local housing agency and others that may wish to partner with you.

### ***CDC's National Asthma Control Program***

The CDC's National Asthma Control Program seeks to "improve surveillance of asthma, train health professionals, educate individuals with asthma and their families, and explain asthma to the public" by funding programs in states, cities, schools, and non-governmental organizations. Each program is targeted for the local population and may be interested in partnerships with other local organizations.

#### **Creating an Action Plan**

[See what programs already exist in your state and contact relevant personnel.](#)

## SETTING UP YOUR PRACTICE

The CHAMPS intervention is designed to accommodate each practice's unique structure by allowing flexibility in implementing the intervention – especially when it comes to facility use, resourcing, and staffing – while still providing instructions on the minimum requirements for implementing the intervention correctly and effectively.

Follow the links below to access the sections of the Manual that provide guidance on setting up your practice and coordinating the personnel needed to implement the CHAMPS intervention.

- [Resource and Facility Recommendations](#) – Prepare your facilities to effectively conduct the CHAMPS intervention.
- [Staff Roles and Job Descriptions](#) – Identify the key personnel needed to implement the CHAMPS intervention.
- [Working With Electronic Health Records](#) – Incorporate health information technology into the CHAMPS workflow.

## RESOURCE AND FACILITY RECOMMENDATIONS

CHAMPS is designed to be implemented in a variety of health center settings, with a wide range of experience, diverse patient populations, and varying levels of capacity. While each health center is unique, having a well-organized approach to implementing the intervention that includes plans for resourcing, supply management, and facility use will help health center staff to be more effective and ensure patients receive optimum care. Staff and patients alike will benefit from implementing the recommendations for resource and facility management outlined in this document.

Before beginning CHAMPS, each practice will need to review the procedures they plan to perform in the health center, and ensure the facilities are adequate for the procedures planned. It is assumed that each practice will have standard facilities – reception area, waiting area, and examination rooms – though we recognize that the layout, size, and usefulness of these facilities can vary widely.

### Allergen sensitivity testing

CHAMPS requires an allergen sensitivity assessment to tailor the intervention to each patient's unique allergic triggers. Allergen sensitivity tests are most commonly performed via skin prick tests, but serum antibody tests can also be performed to assess antibody response to allergens. Your health center will need to decide which test to perform.

Skin prick tests can be performed on practice and provide same-visit results for sensitivity, but they require the practice to maintain allergen extract supplies and have a Clinician who can evaluate and assess each patient's results. Learn more about allergen sensitivity testing in this brief [CHAMPS eLearning video](#). Skin prick testing can be performed in a standard examination room, with supplies kept in a central location.

Serum antibody tests require the health center to take a blood sample from the patient and send it to a lab for testing. Blood sample draws can be more familiar procedures for health centers than skin prick tests, but they tend to be more painful for the patient and require more administrative time from the practice to manage specimens, ship to labs, and to receive, review, and report results.

Each practice should select the process that works best for them. Of the two processes, we recommend skin prick testing for its ease of administration, discomfort for the patient, and compliance with the original evidence based interventions.

### Spirometry (Pulmonary Function Testing)

The National Heart Lung and Blood Institute recommends using spirometry to diagnose asthma in their [Guidelines for the Diagnosis and Management of Asthma](#). Spirometry is not a required component of CHAMPS, but we recommend that all physicians comply with the NHLBI's Guidelines when diagnosing and treating patients with asthma.

If your practice plans to perform spirometry, you will need a spirometer and a room in the practice for conducting spirometry. Spirometry is an effort-dependent procedure, which can sometimes be challenging for patients and adolescents to perform correctly. An ideal spirometry room is one that is quiet and free from distraction, so the technician performing the test can provide clear instruction and coaching to the patient.

## **Asthma Counseling**

We recommend that each health center maintain a separate space for asthma counseling visits, office space for Asthma Counselors, and storage space for environmental management supplies.

Asthma counseling visits need to be conducted in a quiet, private area, free from interruptions or distractions. At least one Asthma Counseling session – the first one – will be conducted in the health center, with subsequent sessions being completed in the patient’s home, the health center, or another mutually-agreed-upon location. Regardless of the location, the counseling area should provide a quiet, welcoming environment for the family, where they feel comfortable answering questions and discussing their patient’s asthma and home environment. A waiting room is not an ideal location for counseling because it rarely provides adequate privacy for the family, and is frequently loud and distracting. An exam room is better for privacy, but exam rooms are rarely designed to provide comfortable and welcoming environment for a family. Moreover, exam rooms are often in high-demand, whereas counseling visits can routinely take 60-90 minutes.

Ideally, the health center can provide a separate room that is warm and inviting, has some toys and activities for the patients, and an area for face-to-face interaction with the patient and caregiver (e.g., seats that face one another, a small table with chairs side-by-side or directly across from one another).

Asthma Counselors also need access to a computer, desk, telephone, and record filing resources. Counselors will need to manage a schedule of visits, access online resources, conduct counseling and follow-up calls with families, and maintain counseling records for each patient. If your practice is providing home environment remediation supplies for patients, you will also need a place to store supplies for your families.

## **Managing intervention supplies**

There are a number of supplies that health centers may provide to the families as part of the intervention, but not every family should receive every supply. Effective management of supplies is important to ensure practices maintain an adequate store of supplies and distribute supplies appropriately.

If you are unable to provide supplies to the family, Asthma Counselors should at least provide the family with information about where they can obtain supplies on their own.

The specific materials for the intervention will vary depending on which allergens to which the patient is sensitive and exposed in their home. The core materials consist of:

- HEPA vacuum
- Bedroom HEPA air filter
- Pail and cleaning utensils
- Non irritating cleaning supplies
- Mattress and pillow covers
- Trash bags
- Food storage containers

Refer to the Conducting Individual Counseling Sessions section for information about determining which materials should be given out to each patient.

## Allergy Supply Companies

The following list of companies is current as of September 2015, but links and companies are subject to change. This is not meant to be exhaustive, nor does CHAMPS endorse or recommend any single vendors. Each health center should identify vendors (including local companies and retailers) that can supply the resources their families need

### HEPA Units

Kaz Incorporated  
250 Turnpike Road  
Southborough, MA 01772  
800-477-0457  
<http://www.honeywellpluggedin.com/air-purifiers>

Holmes Products Corp.  
233 Fortune Blvd.  
Milford, MA 01757  
800-5-HOLMES (465637)  
<http://www.holmesproducts.com/>

### HEPA Vacuums

TTI Floor Care North America  
7005 Cochran Rd.  
Glenwillow, OH 44139-4303  
888-321-1134  
<http://www.ttifloorcare.com/>

Southampton Vacuum  
67 Jobs Lane  
Southampton, NY 11968  
800-964-8227  
<http://www.southamptonvacuum.com/>

Miele  
9 Independence Way  
Princeton, NJ 08540  
800-843-7231  
<http://www.mieleusa.com/>

### Environmental Kits

Ives Business Forms, Inc.  
1009 Camp Street  
New Orleans, LA 70130  
Peter B. Ives, President  
800-444-7511  
<http://www.ivesbf.com/>

### Bedding

Allergy Control Products Inc.  
96 Danbury Road  
Ridgefield, CT 06877  
800-422-DUST (3878)  
[www.allergycontrol.com](http://www.allergycontrol.com)

National Allergy Supply Inc.  
1620-D Satellite Blvd.  
Duluth, GA 30097  
800-522-1448  
<http://www.natlallergy.com/>

### Vent Material

Allergy Control Products Inc.  
96 Danbury Road  
Ridgefield, CT 06877  
800-422-DUST (3878)  
[www.allergycontrol.com](http://www.allergycontrol.com)

Magnetic Vent Guards  
Allergy Asthma Technology  
8145 North Austin Avenue  
Morton Grove, Illinois 60053  
800-621-5545  
<http://www.allergyasthmatech.com/>

## STAFF ROLES AND PERSONNEL

A variety of health center staff with a wide range of educational backgrounds and experiences are expected to work on the CHAMPS intervention. Of these, the roles of most importance for the CHAMPS intervention are those of the Asthma Champion and the Asthma Counselor.

This document provides descriptions for the Asthma Champion and Asthma Counselor roles, and other key roles on CHAMPS. Following the role descriptions, we provide a description of the types of clinical staff likely to fill those roles, along with their strengths and weaknesses.

Your health center may or may not need to add staff to implement the CHAMPS intervention. Your staffing needs will be dictated by the size of the population you serve, the prevalence of asthma in your patient population, existing workload, and the skills and expertise of your existing staff. Existing staff can often fulfill the necessary roles on CHAMPS, provided that they have the requisite skills and support as described below.

It will be important for health center administrators to assess their staff and determine which ones are best suited to participate in the intervention based on their background and experience. In particular, it is essential that Asthma Counselors be as experienced and well trained as possible in asthma counseling.

### Staff Roles

#### ***Asthma Champion***

The role of the Asthma Champion is to advocate for the health center to provide the highest-quality of care for patients with asthma. This person may, or may not be the same person as the Asthma Counselor. The Asthma Champion is familiar with the [Guidelines for the Diagnosis and Management of Asthma](#) and promotes the use of the guidelines throughout all levels of the practice. The Champion works with physicians, Clinicians, and nurses, to ensure they know how to adequately treat and manage asthma throughout the practice. The Champion works with health center management to gain their buy-in and support for the CHAMPS intervention, and other asthma programs.

The Asthma Champion must be a respected member of the health center team, someone who has the trust and support of their peers, management, and care teams. The Asthma Champion must also be a vocal member of the staff, someone who is willing to advocate for improvements and speak up when changes need to be made.

#### ***Asthma Counselor***

The role of the Asthma Counselor is to provide family-centered, patient-tailored asthma counseling to each patient enrolled in the CHAMPS intervention. The Asthma Counselor develops strong relationships of mutual trust knows each patient in the program and their families by name. The Counselor works with physicians, Clinicians, and nurses to make sure they are aware of the CHAMPS intervention and how to refer patients to the Counselor. The Counselor can speak the language of the Clinicians, the language of administration, and the language of patients to provide highly-coordinated and personalized care for each patient.

The Asthma Counselor must have a strong understanding of asthma, of guidelines-based care, and of the details of the CHAMPS intervention. Further, the Asthma Counselor must be able to build trusting relationships with patients, where patients feel comfortable being honest with the counselor, and the counselor is viewed as a trusted advisor by patients. The Counselor must be an excellent communicator with patients and care teams, capable of exhibiting empathy with patients, while still guiding patients to implement lasting changes that will improve their asthma.

### ***Physician/Clinician***

The role of the Physician/Clinician in CHAMPS is to provide Guidelines-based asthma care for patients and to identify which patients are ideal candidates for the CHAMPS intervention. Physicians are able to interpret the results of diagnostic procedures (i.e., allergen sensitivity test, pulmonary function test) and refer patients to the Asthma Counselor.

Clinicians must be willing to “share” their patients with the Asthma Counselor, and respect the role of the Asthma Counselor. Clinicians must also respect the knowledge of the Asthma Counselor, including the Counselor’s knowledge of the patient and the Counselor’s knowledge of asthma. This is often the hardest role for physicians who frequently view their knowledge and training as superior to that of the Counselor. Effective Clinicians recognize that the Counselor is able to spend much more one-on-one time with the patient building a trusting relationship, and providing highly-personalized asthma education, and therefore trust the Counselor’s expertise.

### ***Health Center Leadership***

The role of Health Center Leadership is to advocate for adoption of the CHAMPS intervention at all levels. Leadership is an intentionally broad term and may include a variety of individuals in a variety of roles, including but not limited to: Presidents, CXOs, Quality Improvement Coordinators, Health Systems Administrators, Health Services Managers, Medical Directors, etc. Leaders in these roles encourage their teams to refer patients to the CHAMPS intervention and monitor implementation at a center-wide level.

Administrators must be willing to provide visible, ongoing, and continued support for the CHAMPS intervention. They must communicate regularly and ensure all Clinicians and support staff understand the value of the program, and how it is to be implemented in your health center.

### ***Information Technology Lead***

The role of the Information Technology (IT) Lead is to ensure CHAMPS is integrated into the electronic management systems (e.g., electronic medical record, electronic health record, patient scheduling software) at use in the health center. For example, the IT lead ensures staff have tools necessary to schedule counseling visits with patients, record results of diagnostic procedures (e.g., allergen sensitivity testing) in the patient’s medical record, access patient medication records. The IT Lead identifies which health systems can be used to better support CHAMPS, and how CHAMPS can be integrated into existing tools and processes.

IT Leads have a clear picture of the health center workflow and the needs of Clinicians, support staff, and Asthma Counselors. IT Leads are problem solvers, who ensure technology resources enable and support the staff conducting the CHAMPS intervention.

## **Typical Asthma Champion Personnel**

### ***Physician/Physician-Assistant***

#### **Typical Education**

MS, MD, PhD

#### **Strengths**

- Is recognized as a medical expert within the organization
- Situated between practice administration and care teams/support staff, allowing for routine communication with both groups
- Treats patients, so is able to refer them to the intervention
- Able to follow and implement the Guidelines for the Diagnosis and Management of Asthma

#### **Improvement Opportunities**

- May need additional training in asthma management if it was not their specialty
- May encounter “territorial” colleagues who resist their attempts to change practice

### ***Pharmacist***

#### **Typical Education**

PharmD, PhD

#### **Strengths**

- Is familiar with patients’ medication use and compliance
- Considered a trusted voice for patients on medication use
- Situated between practice administration and care teams/support staff, allowing for routine communication with both groups

#### **Improvement Opportunities**

- May be isolated from care team
- Lacks familiarity with the Guidelines for the Diagnosis and Management of Asthma
- May encounter “territorial” colleagues who resist their attempts to change practice

### ***Certified Asthma Educator (AE-C)***

#### **Typical Education**

BS, MS

#### **Strengths**

- Operates as an asthma expert within the organization
- Understands the Guidelines for the Diagnosis and Management of Asthma
- Comes from diverse disciplines and is often comfortable with physician interaction

#### **Improvement Opportunities**

- May struggle to gain respect of physicians/Clinicians
- Less likely to have frequent interactions with health center administration

## **Typical Asthma Counselor Personnel**

### ***Certified Asthma Educator (AE-C)***

#### **Typical Education**

BS, MS

#### **Strengths**

- Demonstrates interest and commitment to the profession through Certification (considered an Asthma Champion in the organization)
- Demonstrates rigorous education and experience via Certification
- Is ready for immediate patient interaction
- Comes from diverse disciplines and is often comfortable with physician interaction
- Understands the Guidelines for the Diagnosis and Management of Asthma

#### **Improvement Opportunities**

- May need additional case management training especially if support staff is not available
- Often come from unique primary discipline that is not focused on asthma. Dependent on their primary discipline, may have a tendency to have stronger focus on one area of interest or greater area of strength. For example, a pharmacist may focus more on medications when counseling, a social worker may target psychosocial issues. These unintentional biases can be resolved via close monitoring of charts and occasional guidance to ensure appropriate comprehensive counseling.

### ***Certified Health Educator (CHES) or Master Certified Health Educator (MCHES)***

#### ***Education***

BS, MS, PhD

#### ***Strengths***

- Professional dedicated to promoting, improving and maintaining individual as well as community health
- Committed to empowering people, assist in defining priorities, setting goals, creating practical solutions and taking ownership of their health issues
- Understands teaching – learning process, communication skills, etc.
- Possible practice asthma champion

#### ***Improvement Opportunities***

- May not have experience actively engaging in practice environment
- Will require additional asthma management training. (Focus moves from broad to more specific disease management)
- May have limited case management experience

## **Nurse**

### **Education**

RN, NP, LPN

### **Strengths**

- Accustomed to working within multidisciplinary team and interaction required for comprehensive care
- Potential to have some case management experience
- Will probably be able to quickly grasp the disease process
- Patients may feel more comfortable interacting with nurse
- May have interest in becoming certified asthma educator

### **Improvement Opportunities**

- Training typically required to get nurse to think outside of an acute setting, to focus on chronic disease management and impact of psychosocial issues
- Additional asthma disease management and guideline training required
- May not be willing/open to conduct sessions outside of the practice setting

## **Medical Assistant (MA)**

### **Education**

Typically have high school education, may have associate degree and or graduated from an accredited MA program, and may or may not have AE-C. Formal education not required these individuals may also have roles as the health educator and case manager

### **Strengths**

- Most have both clinical and administrative training, duties and multiple roles
- Cost savings
- Staff member in each center
- Maybe from target population community therefore has community awareness
- Possible good fit for the environmental interventionist (e.g. HEAL model CHW took lead in the home setting up safe sleep zone)

### **Improvement Opportunities**

- Due to education levels may only train at basic asthma education level (e.g. CHW training level) therefore AC expertise is not similar to the evidence-based standards
- Comfort level in providing recommendations to physicians or senior program staff member concerning asthma management

## **Social Worker**

### ***Education***

BS, MSW

### ***Strengths***

- Experience in case management
- Experience in psychosocial issues
- Knowledgeable about community resources
- Multidisciplinary team member – familiar /comfortable with interaction with clinical members and families
- Ability to learn and teach asthma self-management skills, with training
- Maybe interested in being certified as asthma educator

### ***Improvement Opportunities***

- Specific training in asthma and health care environment is likely required
- May have tendency to focus more on case management and psychosocial issues vs. asthma management

## WORKING WITH ELECTRONIC HEALTH RECORDS (EHRS)

The objectives of CHAMPS are fully aligned with the goals of meaningful use: improving quality, safety and efficiency; reducing health disparities; engaging patients and families; improving care coordination and population health; and, ensuring adequate privacy and security protections for personal health information. This is important for FQHCs and safety net organizations since successful implementation of meaningful use translates to as much as \$63,750 over a 5-6 year period for each physician, nurse practitioner, nurse midwife, dentist and, in some cases, physician assistant, in the practice. Secondly, both the CHAMPS intervention and meaningful use support successful certification or recognition as patient centered medical homes, an important priority for public and private payers as well as state and national health agencies. Therefore, CHAMPS both supports implementation of Health Information Technology (HIT) as well as benefits from the capacity and functions that HIT brings to a practice.

### CHAMPS: HIT for decision support

Clinical decision support, including registry functions, is particularly important for successful implementation of CHAMPS. The “[Five Rights](#)” of clinical decision support provide both a framework and tools to translate evidence based CHAMPS interventions as well as guideline based care to patients with persistent asthma. Simply put, HIT-enabled clinical decision support must provide the *right information*, in the *right formats*, to the *right people*, via the *right channels* at the *right times*)

The *right information* includes clinical guidance and accessible organized patient data. Information delivery formats consist of data and order entry facilitators, reference guideline information, data displays, and alerts. These may be passive, such as templates, or active such as alerts or prompts. *Information recipients* include patients, Clinicians and other members of the team involved in patient care delivery both before and after the visit, including home visits. *HIT channels* provide information via the EHR, patient portal, and health information exchange with other care settings, including specialists. Information is *delivered in time* for analysis and decision-making.

To develop a clinical decision support system for CHAMPS, each practice must map out its CHAMPS intervention workflow. Through a consensus building and refining process, the care team and practice leadership should agree to content, CHAMPS care protocols, formats, data sources, and metrics to track and ensure successful implementation and patient outcomes. Fundamental to the success of EHR to support CHAMPS include alignment with business strategy, senior leadership sponsorship, readiness assessment for change, definition of metrics for progress and success, ongoing process for communication and feedback, collaboration with HIT partners, formal training plans and enthusiastic and effective clinical leadership. With CHAMPS it is especially important to utilize an interdisciplinary implementation team, with opportunities to harvest patient and family feedback.

To help your practice develop and test its HIT system for supporting the CHAMPS intervention, guides and practical worksheets are available at [www.HealthIT.gov](http://www.HealthIT.gov). This information can be found when you click on “For Providers and Professionals” and then access “How to Implement EHRs” and the specific section on Clinical Decision Support (CDS). In addition, the website lists Regional Extension Centers (REC) where practices can obtain technical assistance. Practices may also wish to join the [Clinical Decision Support Collaborative for Performance Improvement \(CDS/PI\) Collaborative](#). Finally, the majority of health centers participate in Health Center Controlled Networks (HCCN) which may provide assistance with CDS. [Learn more information about HCCNs and the tools they provide.](#)

## IDENTIFYING AND ENGAGING PATIENTS

Practices implementing the CHAMPS intervention need processes for identifying and engaging ideal patient candidates.

### Identifying Patients

The patients most likely to benefit from the CHAMPS intervention are patients with moderate-to-severe and poorly controlled asthma, as defined by the National Heart, Lung, and Blood Institute's (NHLBI) [Guidelines for the Diagnosis and Management of Asthma](#). We strongly recommend Clinicians implement guidelines-based care in their practice.

Learn more about identifying patients for continuous care in this brief [CHAMPS eLearning video](#).

Learn more about implementing guidelines based care in this brief [CHAMPS eLearning video](#).

Patients can be identified and referred to CHAMPS as part of their normal care visits, but consider using more proactive approaches to identify patients for the program. For example, identify candidates by reviewing pharmacy records or patient diagnostic registries. Also consider advertising the program within your practice and throughout your community (e.g., posters, flyers, local media).

Use the [Asthma Symptoms & Utilization: Baseline questionnaire](#) to quickly assess symptoms in the previous 4 weeks, asthma-related healthcare utilization (i.e., urgent care visits for asthma, asthma-related hospitalizations), and medication use for asthma, which are key components of guidelines-based diagnosis. Please note, however, the ASU questionnaire is not intended to diagnose asthma control or severity. You may also consider using publicly-available instruments like the [Asthma Control Test](#) or [Childhood Asthma Control Test](#) to aid in your diagnosis.

### Engaging Patients

The CHAMPS intervention is designed as a year-long program with multiple visits and points of contact between the health care team and the patient. The intervention is most successful with families who are committed to attending scheduled visits and implementing the treatment and behavioral changes recommended by the health care team. While it is impossible to guarantee patient commitment and engagement to the intervention, several factors can help lead to engaged families:

- **Skilled Asthma Counselor** – Patient engagement and retention is strongly influenced by the ability of the Asthma Counselor to build trusting relationships with families. Learn more about the qualities of a strong Asthma Counselor in the [Staff Roles and Personnel section](#).
- **Engagement from Providers** – The entire healthcare team needs to support the CHAMPS intervention. Patients trust their healthcare providers; if providers encourage their patients to participate in CHAMPS, it will boost their interest and engagement in the intervention. Learn more about provider engagement in the [Conducting a Successful Intervention section](#).
- **Emphasis on Personalized Care** – The CHAMPS intervention provides a family-centered, patient-tailored approach designed to meet the specific needs of each patient and family. Families are more likely to be engaged if they know the intervention is tailored to the patient's unique asthma risk factors. Care teams should emphasize the personalized aspect of the intervention. Learn more about the personalized intervention in the [Tailoring the Intervention section](#).
- **Patient Incentives** – Even with the promise of improved health for their child, keeping families engaged for a year-long program can be challenging. Sometimes additional incentives can be

used to help motivate families to stay involved. Incentives can include giving the families the home environment remediation supplies (e.g., HEPA filters, HEPA vacuums). Previous CHAMPS program sites found that giving the families modest gift cards for local merchants was also a way to keep them engaged, at a minimal cost to the practice.

- **Emphasis on Evidence-Based Research** – The CHAMPS intervention is based on over 20 years of [evidence-based research in asthma](#); the components of the intervention have been replicated in controlled clinical trials and in “real-world” primary care practices around the country; emphasize the strong research foundation of CHAMPS with families

## CONDUCTING PATIENT ASSESSMENTS

Patient assessment visits are used to evaluate the patient, characterize their asthma, assess their allergic sensitivities, and identify asthma and environmental risk factors.

The assessment visits include:

- [Baseline Clinical Assessment](#) – Collect information on the patient to establish a baseline for comparison
- [Home Environment Assessment](#) – Visit the patient’s home to assess environmental risk factors for asthma
- [6-Month Outcome Assessment](#) – Reassess patient’s asthma symptoms and asthma-related healthcare usage via physician assessment and the [Asthma Symptoms and Utilization: Follow-up questionnaire](#) to see if the patient’s asthma is improving over the first 6 months of the intervention
- [12-Month Outcome Assessment](#) – Reassess patient’s asthma symptoms and asthma-related healthcare usage via physician assessment and the [Asthma Symptoms and Utilization: Follow-up questionnaire](#) to see if the CHAMPS intervention has improved the patient’s asthma over the 12-month intervention period

Information collected about the patient during the Baseline Clinical Assessment and Home Environmental Risk Assessment is used to create the patient-tailored asthma counseling plan delivered during the [Asthma Counseling sessions](#). Information collected at the 6-month and 12-month visits is used to track the progress of each patient that participates in the intervention.

## ESSENTIAL ELEMENTS OF PREVENTATIVE ASTHMA CARE

Asthma is a multi-faceted chronic disease that is attributed to, and influenced by, a variety of physiological, demographic, and environmental factors. There is no cure for asthma but patients can often manage and minimize their symptoms through a combination of medication use, behavioral change, and limiting exposures to asthma triggers.

Physicians treating patients with asthma should follow the National Asthma Education and Prevention Program's [Guidelines for the Diagnosis and Management of Asthma](#).

The core focus of asthma treatment is to reduce a patient's asthma symptoms with a special focus on preventing asthma exacerbations. Exacerbations, commonly called "asthma attacks," are acute episodes of bronchoconstriction and airway inflammation characterized by wheezing, coughing, and difficulty breathing. Exacerbations often lead to unscheduled doctor visits, and emergency care visits – especially among patients.

The Guidelines provide detailed explanations for how to assess asthma severity and asthma control – two important variables in characterizing a patient's asthma – and how to provide a treatment regimen to meet each patient's needs.

Care providers aim to reduce exacerbations by

1. Prescribing medications; the most common are:
  - a. asthma controller medications – medications taken daily to reduce underlying airway inflammation
  - b. bronchodilators – medications which provide acute relief of bronchoconstriction
2. Assessing a patient's asthma triggers
  - a. allergic sensitivity to common environmental allergens (e.g., cat, dog, rodent, mold, cockroach, dust mites) is common in many patients with asthma
  - b. irritants (e.g., tobacco smoke, strong chemical odors, cold weather)
3. Teaching patients effective disease management behaviors
  - a. educating patients on how and when to take their medications
  - b. educating patients on how to avoid common asthma triggers (allergens, irritants, viral infections)
  - c. assisting patients with environmental remediation strategies to limit allergen/irritant exposure in the home (e.g., allergen-proof bedding covers, reducing sources of moisture, preventing rodent and bug infestations)

Learn more about asthma and how it is treated in this brief [CHAMPS eLearning video](#) and follow the [Guidelines](#).

## BASELINE CLINICAL ASSESSMENT

The Baseline Clinical Assessment is used to screen prospective patients for the CHAMPS intervention, collect baseline information about the patient, and begin creating a tailored intervention plan for each patient.

The core elements of this visit are:

- a physical examination
- an assessment of asthma symptoms, asthma-related healthcare utilization, and medication use using the [Asthma Symptoms and Utilization: Baseline questionnaire](#)
- an assessment of pulmonary function; learn more in the [Spirometry section](#)
- an assessment of airway inflammation; learn more in the [FeNO section](#)
- an allergen sensitivity assessment covering a basic panel of the most common indoor environmental allergens; learn more in the [Allergen Sensitivity Testing section](#)
- completion of the Child Asthma Risk Assessment Tool (CARAT); learn more in the [CARAT section](#)

Note: You are not required to conduct all of these elements at a single time point, but it is less burden on the patients and staff to schedule a single comprehensive visit rather than multiple visits. Practices may divide up these components into a couple visits, as needed, to meet the best needs of their staff and the patients.

Information collected about the patient during the Baseline Clinical Assessment and [Home Environment Assessment](#) is used to create the patient-tailored asthma counseling plan delivered during the [Asthma Counseling sessions](#). Information collected at the [6-month and 12-month visits](#) is used to track the progress of each patient that participates in the intervention.

## PULMONARY FUNCTION TESTING (SPIROMETRY)

Spirometry is the timed-based measurement of the amount of air that can be forcefully exhaled from the lungs after a full inspiration. Spirometry is used to help diagnose asthma, assess asthma severity and control, and determine response to treatment.

Spirometry is not a required component for the CHAMPS intervention, as some health centers will not have access to a spirometer to perform the test. However, we advise all physicians treating patients with asthma to follow the [Guidelines for the Diagnosis and Management of Asthma](#), which recommend the use of spirometry in diagnosing and monitoring asthma. If your health center is not equipped to conduct spirometry, consider referring your patients to a pulmonologist or asthma specialist who can perform testing.

### Conducting Spirometry

In the spirometry maneuver, a person inhales as large a breath as possible and then blows it out as fast and as far as possible until no more air can leave the lungs. The volume and rate of flow of the air leaving the lungs is recorded continuously throughout the maneuver.

As a diagnostic medical procedure, health centers are responsible for conducting spirometry according to their local guidelines. However, we recommend that each practice pursue training opportunities in the proper conduct of spirometry and the way to read and interpret spirometry results. An online spirometry training program is available at: <http://www.spirometry360.org/>

### Measurements Obtained from Spirometry

Common spirometry measurements are provided below. For the purposes of the CHAMPS intervention, the values of most importance are the FVC, FEV<sub>1</sub>, and FEV<sub>1</sub>/FVC ratio.

- Forced Vital Capacity (FVC) is the volume of air the patient can exhale after a maximal inspiration to total lung capacity. This volume is expressed in Liters (L).
- Forced Expiratory Volume in One Second (FEV<sub>1</sub>) is the volume of air exhaled in the first second of expiration. This volume is expressed in Liters (L).
- FEV<sub>1</sub>/FVC ratio (%) is the volume of air expired in the first second of expiration expressed as a percent of the forced vital capacity. It is an index of airway obstruction or resistance. In normal patients the FEV<sub>1</sub>/FVC ratio is 0.80 or greater; meaning 80% of the vital capacity is expired in the first second. A patient with asthma or airway obstruction may have a ratio well below 0.80.
- Forced Expiratory Flow 25-75 (FEF) is the forced mid-expiratory flow rate between 25% and 75% of the FVC, measured in Liters per second (LPS). It is the slope of a line drawn between these points on the expiratory curve.
- Peak Expiratory Flow (PEF) is the highest flow generated during the FVC maneuver. This flow is measured in Liters per second (LPS).

Spirometry results are recorded on the [Clinical Assessments form](#).

## FRACTIONAL EXHALED NITRIC OXIDE (FENO) TESTING

Fractional exhaled nitric oxide (FeNO) is a measurement of the concentration of nitric oxide in the air someone exhales. Nitric oxide is a molecule produced naturally in the lungs. The level of nitric oxide people exhale when they breathe can serve as a biomarker (indicator) for airway inflammation, one of the underlying symptoms of asthma. An elevated concentration of nitric oxide in the lungs indicates greater airway inflammation.

FeNO is not a required component for the CHAMPS intervention or an asthma diagnosis. Spirometry is the standard pulmonary function test used when diagnosing asthma (as indicated in the [Guidelines for the Diagnosis and Management of Asthma](#)), but FeNO has grown in popularity in recent years because of the ease of performing FeNO testing versus spirometry.

Spirometry requires a trained technician to administer the test and read the results. Spirometry is also an effort-dependent procedure, meaning some populations (e.g., children and adolescents) have difficulty learning to perform spirometry correctly and consistently. By contrast, FeNO is not effort dependent and does not require a skilled technician to administer the test.

For the FeNO measurement, a person inhales as large a breath as possible through a filter attached to the measurement device, and then exhales steadily for 6-10 seconds. The concentration of nitric oxide is measured and the measurement device gives a concentration value in parts per billion (ppb).

FeNO results are recorded on the [Clinical Assessments form](#).

## ALLERGEN SENSITIVITY TESTING

Allergy tests detect the presence of antibodies to a particular allergen. A positive test suggests that a person may be sensitized to that allergen. Allergen sensitivity testing provides one of the crucial components of the patient-tailored counseling in CHAMPS – sensitization. The other component is environmental exposure, which is determined via the [CARAT](#) and [HEO](#) forms.

The preferred method for sensitivity testing is allergen skin testing because the physician and family can see the results immediately. However, serum IgE testing may also be used in cases where skin testing is not readily available.

### Sensitivity Testing Options

#### ***Allergen Skin Testing***

Allergen skin testing is commonly performed using a prick method, whereby a drop of allergen extract is placed on the skin and a small sharp instrument is then used to break the surface of the skin. After a brief waiting period (typically 15 minutes) the skin at each prick practice is assessed for an allergic response, which is characterized by a raised bump (known as a wheal) and a reddening of the skin (erythema).

If the practice has the means and expertise to conduct skin testing on practice, the test should be performed at the time of the baseline assessment visit. Skin test results should be read by a trained Clinician who will determine the allergens to which the patient is allergic. The American Academy of Allergy, Asthma and Immunology (AAAAI) and the American College of Allergy, Asthma and Immunology (ACAAI) suggest that a prick/puncture test with a response of at least 3 mm diameter more than a non-allergic diluent control is proof of the presence of cutaneous allergen specific IgE.

If the practice is not equipped to conduct skin tests, refer the patient to an Allergy practice or Allergist who can perform testing. After testing, request a copy of the allergen skin test results from the family or Allergist. Alternatively, if the patient has had a skin test conducted in the previous year, the practice may try to obtain results of that skin test.

#### ***Serum IgE Testing***

An alternative to skin testing is to draw blood from the patient for IgE testing. IgE or Immunoglobulin E is an antibody produced in the body that binds to allergens and triggers an immune response. When a sample of serum is exposed to allergens, an elevated concentration of IgE in the serum can indicate allergic sensitivity.

If the practice does not have the means to conduct skin testing or referrals to a local Allergist, serum IgE testing may be a preferred method of identifying allergic sensitivity in patients.

#### ***Recording Results***

Regardless of which test is used or where the test is performed, record the results of the allergen sensitivity tests on the appropriate space on the [Clinical Assessments form](#).

#### **Allergens to be Testing**

Often in clinical practice, patients will be tested for a wide range of allergens. For the purposes of the CHAMPS intervention, there are 10 allergens of highest importance:

### **Animals**

1. Rat epithelia (*Rattus norvegicus*)
2. Mouse epithelia (*Mus musculus*)
3. Cat hair standardized (*Felis catus domesticus*)
4. Dog epithelia (mixed breeds) (*Canis familiaris*)
5. Dust mite mix (*Dermatophagoides farina* and *Dermatophagoides pteronyssinus*)
6. American/German cockroach mix (*Periplaneta americana* and *Blattella germanica*)

### **Molds**

7. Penicillium mix (Penicillium camembertii, Penicillium chrysogenum, Penicillium digitatum, Penicillium chrysogenum notatum, and Penicillium roquefortii)
8. Alternaria (*Alternaria tenuis*)
9. Cladosporium (*Cladosporium herbarum*)
10. Aspergillus mix (Aspergillus amstelodami, Aspergillus flavus, Aspergillus fumigates, Aspergillus nidulans, Aspergillus niger)

Practices are encouraged to test for other local allergens of relevance.

## **Using Sensitivity to Help Tailor Asthma Counseling**

The CHAMPS asthma counseling intervention is tailored to the patient's unique combinations of allergic sensitivities and environmental exposures. Environmental exposure is collected on the CARAT (self-report by the patient's caretaker) and the HEO (staff home assessment visit in the family's home).

After conducting the allergen sensitivity test and the home assessment, the Asthma Counselor will identify the allergens to which the patient is sensitive and exposed. The Asthma Counselor will then prioritize the counseling intervention to focus on these allergens to which the patient is both sensitive and exposed, while taking into account the family's priorities and willingness to address. See the [Tailoring the Intervention section](#) for more details.

If, however, a patient has a completely negative skin test (no allergic reactions to any of the allergens) or a completely negative IgE test, the Asthma Counselor will focus counseling sessions on non-allergic asthma triggers (exercise-, cold-, tobacco smoke-induced). See Modules [1](#), [2](#), [7](#), and [8](#) for details.

## HOME ENVIRONMENT ASSESSMENT

Following the Baseline Clinical Assessment visit, a Home Environment Assessment visit is conducted with each patient. The assessment takes 1-2 hours and will include the [Home Environment Observation questionnaire](#).

Refer to the [Home Visit Guidelines](#) for guidance on how to conduct yourself during a home visit, and to the [Home Visit Safety Considerations](#).

### **Prepare for the Visit**

#### ***Schedule the Visit***

Schedule the Home Assessment to take place within a month of the Baseline Practice Visit. Schedule the Home Assessment visit for a date and time when the patient's primary caretaker will be at home.

#### ***Contact the Family***

Make telephone contact with the family 1-2 days prior to the visit to:

- Confirm the date and time for the visit
- Confirm the address
- Review directions to the home if they are unclear
- Find out if there are any particular procedures to get into the family's building (urban areas) and where to park

Make a final telephone call just before leaving for the home visit to confirm that the visit is about to start and that someone will be there to meet the staff.

#### ***Prepare Supplies***

A variety of supplies are needed for the home assessment visits. Practice staff may wish to create home assessment "kits" that hold many of the common supplies. Take the following supplies and equipment to each visit:

- Cellular telephone
- Family's telephone number and address
- Street map
- Home Environment Observation forms (more than one copy in case one gets damaged or lost)
- Flashlight
- Environmental remediation supplies (see note below)

Note: Consider bringing environmental remediation supplies for the family to the visit. Bringing the supplies to the home visit saves the family from the burden of picking up the supplies from the practice and transporting the materials home on their own. Providing the supplies at the home visit will also serve as an incentive to the family to schedule and complete the Home Assessment visit. Additionally, bringing the supplies to the family's home (during the Home Assessment or Asthma Counseling visits) will allow the Asthma Counselors to provide on-practice training on the proper use of the materials.

### **Conduct the Visit**

Note: It is recommended that visits be conducted by teams of two staff members to ensure staff safety, but each practice should follow their own institutional guidelines for practice visits.

### ***Introduction to the Family***

Introduce yourself when you arrive at the home and explain what will be occurring in the visit. Always ask permission of the family before conducting the different evaluation activities (e.g., before entering a room, opening cabinets, or looking in closets).

Be conscious of the family's comfort or discomfort with the team's presence in the home or activities in specific areas. You have a job to do and the more thorough a job you do, the better care you can provide to the patient. Communicating with the family throughout the visit is an important way to maintain a cordial and professional visit. Conduct the visits efficiently to avoid inconveniencing the family as much as possible. However, do not feel obligated to hurry through the activities or skip important steps.

### ***Home Environment Survey***

The survey is designed to characterize the physical environment in which the patient lives, and the allergens the patient is likely to be exposed to. Most of the information will be collected by your direct observation. However, a few of the questions are to be asked of the caretaker. If necessary, you may ask for assistance from the caretaker in determining the answer to any question.

Four rooms will be surveyed: kitchen, TV/family room, bathroom, and patient's bedroom (if there is more than one bathroom in the home, survey the bathroom the patient uses most often).

### ***Asthma Counseling***

Asthma counseling is not planned for this visit because the tailored intervention can only be provided once the information from the home assessment is gathered and compiled. However, Asthma Counselors who are performing home assessments need to remain polite and continue to build rapport with the family.

Questions may arise from the caretaker regarding their patient's asthma. The Counselor will address the family's questions and concerns, while explaining to the family that the information gathered from the assessment will be used to build a tailored intervention for the patient. More time will be spent at the next visit to provide further detail about what can be done to help their patient. This way the Asthma Counselor can focus on completing the assessment while acknowledging the family's concerns.

### ***Concluding the Visit***

When you are finished completing the survey, thank the family for their time and ask if they have any questions. Explain the next steps to the family, namely that you will use the information you collected to build a tailored intervention for the patient and that someone from the practice will be in touch to schedule an asthma counseling visit.

## HOME VISIT GUIDELINES

Home visits are an integral part of the CHAMPS intervention. Home visits can pose a number of challenges, but they also offer the opportunity to collect the most reliable information about the patient and to implement some of the most effective intervention strategies.

### Reasons for a Home Visit

In the CHAMPS intervention, you will conduct home visits for two reasons:

- Conduct an environmental assessment
- Conduct an in-home asthma counseling session

This document provides an overview of each of these visits and how to proceed if your practice is unable to enter the patient's home. Other sections of the Manual provide specific instructions for each type of visits, including details on how to prepare for each visit and step-by-step procedures for each in-home activity.

### *Environmental Assessment*

Assessing the patient's home environment allows the staff to characterize the physical environment in which the patient lives and the allergens/irritants to which the patient is likely to be exposed. The information will be collected by the evaluator's direct visual observation of the exposures the patient faces in the home.

### *Asthma Counseling*

At least one counseling visit will be scheduled in the patient's home. Conducting counseling in the home allows the Asthma Counselor to educate the family on how the indoor environment affects asthma, directly remediate the allergen and irritant burden in the home, and instruct the family on how to maintain an allergen/irritant-free home in the long term.

### Home Visit Conduct

For the intervention to be successful, families must be engaged and must trust that the practice staff care about their wellbeing. Home visits provide a critical opportunity to build trust and engagement with the family. Yet, they can also undermine a family's trust and involvement if staff fail to act with respect and tact while in the family's home. Follow the guidelines below any time staff are in a patient's home for any reason.

### *Preparing for the Visit*

Make telephone contact with the family two days prior to the visit to:

- Confirm the time for the visit
- Confirm the address
- Find out if there are any particular procedures to get into the home (e.g., apartment building gate), and where to park
- Double-check the telephone numbers and address of the home

Make a final telephone call just before leaving for the home visit to confirm that the visit is about to start and that someone will be there to meet the staff.

### ***Initiating and Carrying Out the Visit***

Starting the visit well is important for establishing the expectations and tone of the visit.

- Remember that you are a guest in the family's home. Knock or ring doorbell before entering the family's home. Never walk into the home uninvited.
- Be careful not to track dirt into the home.
- Introduce yourself to everyone present in the home.
- Engage the family in polite conversation to establish rapport.
- Remind the family of the purpose for your visit.
- Ask permission before you conduct each activity in the home (e.g., before entering a room, opening cabinets, or looking in closets). This not only lets the family know what you need to do, it also shows that you respect their home and their space.
- Engage the family in how to utilize equipment, teaching activities.
- Respect the family's time (try to keep visits to 90 minutes or less)
- Be aware of your surroundings at all times. If suspicious activities are occurring leave home – your safety is more important than the intervention.

### ***Closing or Terminating the Visit***

Ending the visit well is important because it clarifies what is to be expected in future encounters and establishes the relationship between the Asthma Counselor and the family.

#### **All Visits**

- Inform the family of the next steps and schedule upcoming visits, if necessary
- Determine if family has questions, concerns
- Give the family your work phone number; never give your personal phone number

#### **Asthma Counseling Visits only**

- Give a brief review of the information provided to the family
- Stress the positive behaviors identified as well as family strengths

### **Post-Visit Tasks**

The home visit is not complete at the time you leave the family's home. Depending on the purpose of the visit, there may be questionnaires to review, counseling notes to record, follow up with the family for questions/concerns raised during the visit (e.g., referrals, additional family education, supplies, contact information).

## HOME VISIT SAFETY CONSIDERATIONS

Staff safety is of utmost importance for the CHAMPS intervention. Staff should never jeopardize their safety for the sake of collecting information or conducting counseling visits. Home visits are typically very safe, but staff should take precautions to ensure they protect themselves from potential hazards, and staff should be prepared to respond in the event of an emergency while away from the practice. The recommendations provided in this document are collected from previous studies where home visits were conducted.

Ultimately, each practice should follow their own local guidelines for conducting home visits. If practices do not have established guidelines, they may develop their own or adopt the recommendations in this document.

### General Guidelines

The following procedures will improve personal safety for anyone making home visits, all staff should:

- Visit on the day/time agreed upon by you and the family.
- On the day of the scheduled home visit, reconfirm the home visit with the family, and ensure you know the location of the home and have accurate directions. Do not proceed to a family's home if you are unable to reach them on the day of the visit.
- Inform another staff member at the practice of your home visit schedules, location, and time of scheduled home visit.
- Inform the practice staff if you have any car problems, while on a visit.
- Make all home visits in pairs during daylight hours.
  - Complete visits with enough time for the staff to reach their car/transportation and leave during bright daylight hours.
  - Never make visits during evening hours.
  - Never make visits alone.
- Carry a cell phone to all home visits for emergency purposes.
  - Keep the cell phone on your person during the visit
  - Have designated staff available by phone or pager when home visits are being conducted.
  - Carry a list of essential phone numbers (police, practice, and other staff).
- Be alert and vigilant at all times from the moment you leave the office; pay attention to what is happening around you, on the street, and in the family's household.
- Avoid carrying any valuables; lock valuables in trunk or leave them at the practice
- Carry essential identification only. Always wear your name tag/employment identification.
- Do not wear jewelry or carry a wallet/purse.
- Dress conservatively.
- Carry \$10 for quick access if someone demands money.

- Request that pets be placed in another room while you are there. Back away, never run from a dog. If you encounter a protective pet, document that there is an animal in the home that is protective of the patient/family so that others who visit this family can take precautions.
- Only take materials into the home that pertain to that particular family.
- When you enter a home observe all exits and sit in a way that you have access to that exit.
- If you feel unsafe at any time (either in the families' neighborhood or home) leave immediately
- Feel free to ask the caretaker to meet you outside (e.g., "'I'm unfamiliar with your neighborhood. Can I call you five minutes before I get there so you can meet me at the door?")
- See/meet the caretaker before entering the apartment
  - Don't take someone's word that the caretaker is in the back room.
- Acknowledge everybody.
  - Trying to act invisible is often viewed as rude or suspicious.
- Feel free to ask the caretaker to watch you leave, or walk you to the car.
- Go to the caretaker for help (e.g., flat tire, people around your car).
  - If need be, tell the caretaker that you need to wait inside the apartment for help.
- Consider inviting local police to conduct a security orientation meeting for the intervention staff before the project begins.

***If you do experience problems, they will rarely have anything to do with you.***

- The main concern is being caught in the middle.
- The vast majority of people in neighborhoods are families going about their lives.
- Never enter a house if there is yelling, screaming, breaking glass etc. coming from within – call the police.
- If an aggressive incident occurs, remember to try and remain as calm as possible, speak slowly and calmly.
- Try and keep a barrier (e.g. table, between you and the aggressor where practical).
- Slowly try to move toward an exit, or consider a room you can barricade yourself in and use your cell phone to call police.
- Do not enter a home with someone who is under the influence of alcohol or drugs.
- Do not enter a home with someone who is inappropriately dressed.

**Travel Safety Tips**

- Lock your car doors as soon as you get in.
- Before getting out of the car, thoroughly check the surroundings.
- Where practical, do not park in the driveway (you could be blocked in) – but if you need to, think about reverse parking in, so you can simply drive out.
- In a cul de sac, park in the direction of the cul de sac exit.

- Approach your car with keys in hand.
- Check the car interior before entering.
- Keep doors locked at all times.
- Hide your purse/packages/valuables so they are not open to view.
- Avoid parking besides vans/trucks.
- Park in well-lit areas and avoid parking in isolated areas.

### **Urban Considerations**

- Identify potential locations in neighborhoods that have a history of crime.
- Establish a system with the local Police Department to identify risky areas and to develop a street address file to distinguish high-risk addresses.
- Brief intervention staff making the home visits so that if they reach a location and there is a sense that the neighborhood or home is unsafe, then the home visit should be avoided.
  - Beware of signs that may indicate an area is unsafe:
    - Gang-related graffiti
    - Speeding cars
    - Teen/adult males loitering, especially during the day
  - If kids and families are visible in the area, the area is usually safe

### **Rural Considerations**

- Check that you have good cell service before you get out of the car.
  - If you have poor or limited service, try to contact the practice and notify them of your situation before you go into the family's house. Arrange to touch base with the practice at a predetermined time when you think the visit will be over. If you have not called the practice by the predetermined time, they can attempt to contact the family at their home phone to follow up. If the staff cannot reach the family, they can contact the police, as needed.
- When you arrange the visit, ask the family if they have any pets. If so, ask that they please put the pets away before your visit.
  - When you arrive at the family's house, look for signs of any loose pets. If you see a loose dog or other animal that alarms you, stay in your vehicle. If necessary, call the family to let them know you have arrived and ask that they please put the animal away before you come in.
  - Some pet owners insist that their pets are safe and will not hurt. While this may be true in most cases, you have the right to feel safe during the visit. Even if the family insists the pet is safe, you may tell them that they are required to put the pet away during your visit or you cannot come in the home.

## FOLLOW-UP ASSESSMENTS

The Follow-up Assessments are used to monitor progress in the CHAMPS intervention by repeating the measurement of asthma symptoms, asthma-related healthcare utilization, and medication use that was originally collected at the [Baseline Clinical Assessment](#) using the [Asthma Symptoms and Utilization: Follow-up questionnaire](#).

Follow-up assessments are prescribed at two time points: 6 months and 12 months after baseline. The 12-month assessment can be conducted as part of your annual well-care visit with the patient. Follow-up at 6 months is used to gauge progress halfway through the intervention period. **Please note that you will need to complete the Asthma Symptoms and Utilization (ASU) form at both 6 months and 12 months if you wish to collect a year's worth of data on healthcare utilization (see below).**

The only activity prescribed for the Follow-up Assessments is the completion of the ASU: Follow-up questionnaire. Hence, the visit may be conducted by phone. The Assessment may be combined with an Asthma Counselor visit, but if done so, the ASU: Follow-up questionnaire should be completed before counseling is provided.

Results from the ASU questionnaires can be compared between baseline and follow-up to quantify the improvement in the patient's asthma over time, but care is needed to make sure you compare the information correctly, as noted below.

**Note 1:** The **ASU: Baseline** questionnaire asks about healthcare utilization in the **past 12 months** whereas the **ASU: Follow-up** questionnaire asks about utilization in the **past 6 months**.

The reason for this difference is that the Follow-up questionnaire is meant to be asked at both 6 months and 12 months to collect a year's worth of data on healthcare utilization.

To compare healthcare utilization data between baseline and follow-up, you must first combine the patient's answers to the healthcare utilization questions from 6 months and 12 months first, and then compare this to the baseline data.

### Instructions:

- Add the answer from question 5 at the 6-month follow-up to question 5 at the 12-month follow-up
- Add the answer from question 6 at the 6-month follow-up to question 6 at the 12-month follow-up
- Compare the added values above to questions 5 and 6, respectively, on the baseline assessment

Comparing utilization data between follow-up and baseline, without properly adding up the utilization questions, will create an inaccurate measure of change.

**Note 2:** **Do not** add up any other questions between time points. The addition of answers only applies to questions 5 and 6. The remaining answers on the questionnaire can be compared between time points directly, without any addition or other calculations.

## CONDUCTING ASTHMA COUNSELING

Asthma counseling is the core component of the CHAMPS intervention. The Asthma Counselor educates patients and their families on asthma and teaches them how to manage the disease via proper medication use, behavior change, allergen avoidance, and environmental allergen mitigation. Asthma counseling is patient-tailored with each counseling session personalized to the patient's allergic sensitivity, environmental exposures, disease knowledge, and current behaviors.

The Asthma Counselor uses the CHAMPS tools to learn about each patient's unique experience with asthma, asthma management, allergic sensitivity, and environmental exposures, and then provides a tailored counseling intervention.

The CHAMPS intervention consists of three basic components:

- 1) [Asthma](#) and [allergic sensitivity assessment](#)
- 2) [Home environment assessment](#)
- 3) [Patient-tailored asthma counseling](#)

Asthma Counselors may be responsible for some or all of these steps, depending on how your practice is organized. Steps (1) and (2) provide the personalized, patient-specific information needed to craft a tailored intervention in step (3).

Counseling is delivered via face-to-face interactions, either at the practice or in the patient's home. The counseling objectives and topics for each visit occur in a recommended order that is unique to the patient, based on his/her specific asthma risks, environmental exposures, and allergic sensitivities. Counselors conduct a minimum of 4 counseling visits in the year-long CHAMPS intervention, but additional visits may be scheduled if a patient needs additional time to complete their specific counseling objectives. Likewise, visits may continue beyond a year to help families achieve optimum control over the patient's asthma. No two patients are the same, and families will progress through the counseling components at different speeds and with varying degrees of success.

The [Conducting Asthma Counseling section](#) provides detailed instructions that cover all phases of the CHAMPS asthma counseling intervention. In addition to studying the CHAMPS materials provided on this practice, we strongly recommend that Asthma Counselors seek external asthma education training and certification via the [National Asthma Educator Certification Board](#).

## ASTHMA COUNSELOR BACKGROUND AND TRAINING

The materials in this section provide important context and instruction for conducting the CHAMPS asthma counseling intervention. However, it is impossible to provide all of the information and training needed to be an Asthma Counselor in this Manual. The resources in this Manual provide general guidance, but Asthma Counseling is a profession unto itself. We strongly encourage staff who serve as Asthma Counselors to pursue [National Asthma Educator Certification](#).

Before starting the CHAMPS intervention, Asthma Counselors need to have a thorough understanding of the CHAMPS program. We recommend Asthma Counselors complete the following steps before seeing their first patient:

1. Watch this brief [CHAMPS eLearning video](#) on Asthma Counseling
2. Study this Manual, especially the [Conducting Asthma Counseling](#), [Conducting Patient Assessments](#), and [Conducting Individual Counseling Sessions](#) sections
3. Study the [CHAMPS Questionnaires](#), especially the [Asthma Symptoms and Utilization](#), [CARAT](#), [Home Environment Observation](#), and [Asthma Counselor Checklist](#) – understand how to administer/complete these forms and how the information on the questionnaires is used
4. Study the [Patient Education Handouts](#) – learn the information and recommendations on each handout and how this information can be communicated to patients and families
5. Practice conducting asthma counseling sessions with a colleague. Start with easy scenarios as you learn the basics, then advance to more complicated scenarios (e.g., a patient with multiple sensitivities and exposures, a family unwilling to make the recommended changes.)

## COUNSELING AND TEACHING STRATEGIES

The effectiveness of the asthma counseling intervention is influenced by establishing rapport with the families, and creating an environment that is conducive to education that leads to behavior change. A constructive counseling environment is characterized by relationships between the counselor and family that foster mutual respect, collaboration, and open communication. Understanding how families learn, and developing strategies for effective teaching will improve the chances that families will successfully adopt and implement the counselor's recommendations.

This section of the Manual provides general counseling strategies based on research into the ways people learn, become empowered, and act. Learning, empowerment, and action should be the goals every counselor aspires to with their patients. To make a lasting improvement in a patient's asthma care, families need to learn about their disease and strategies for managing it, feel confident in their ability to make changes, and act upon this information and feeling of empowerment. Understanding these learning models and how to apply them successfully, will often make the difference between an effective and ineffective counselor.

### Learning Models

#### *Health Belief Model*

Several models of health behavior change, including the Health Belief Model, influence the approach and strategies used to teach and motivate caretakers. In a sense, the activities being asked of the caretakers are long-term preventive health practices that will reduce the patient's asthma morbidity.

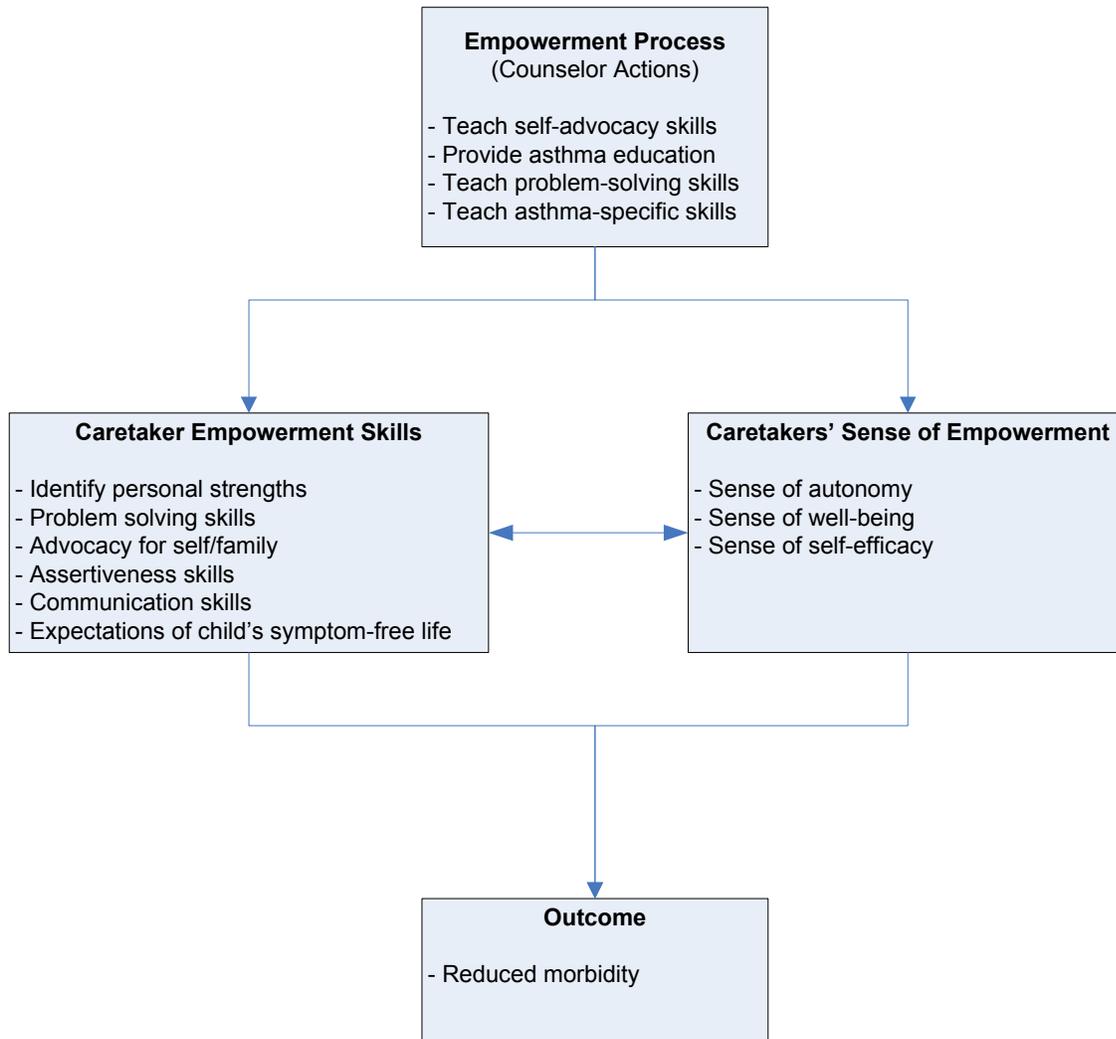
People are more likely to adopt preventive health practices if the following learning milestones are achieved. The six principles below guide the content of the intervention program:

- Be told that there is a problem, or a risk factor, for asthma morbidity from the indoor environment (sometimes referred to as a cue).
- Know that there is something that can be done about the indoor environment and feel confident that they can influence it.
- Learn what to do, become skilled in allergen removal, and feel competent in the skill.
- Have the tools and resources needed to eradicate the allergens, including HEPA air filters, vacuum cleaners, and cleaning materials.
- Be able to identify barriers or obstacles to implementing the behavior change long-term and identify strategies to overcome them.
- Believe that the benefit their patient will experience is worth the cost of their effort.

#### *Empowerment Model of Learning*

Many caretakers and patients feel that they are powerless to improve asthma symptoms. The empowerment process seeks to debunk this misconception by teaching families effective asthma management skills and helping families develop an attitude of confidence and self-sufficiency (see Figure 1). Families who are given tangible skills for disease management and who develop an attitude of empowerment are more likely to take an active role in treating and managing asthma.

**Figure 1: Empowerment Model**



## Motivational Counseling

The information in this section is adapted from “Brief Motivational Interviewing” by Rollnick et al.

The Asthma Counselor will be faced with two main challenges: 1) educating caretakers about environmental triggers and their reduction, and 2) convincing these caretakers that these issues are important enough to warrant behavioral and lifestyle changes. Motivating behavior change is the greater of these two challenges.

As a behavior change strategy, giving information by itself does not work very well because it is often ignored, or used to reinforce existing attitudes, beliefs or values. Caretakers frequently resist being “told what to do”. One problem with giving advice is that many caretakers may not be ready to change at the time of the home visit discussion.

Advising about the mechanics of behavior change (what actions to take) may be misdirected or premature if the issue of ambivalence has been ignored. Counselors should raise the subject of behavior change in a sensitive and respectful manner, and the approach should be flexible and capable of being used with caretakers who vary in their degree of readiness to change. Provided below is the

rationale for such a behavioral change strategy, followed by an approach to optimize the success of the Asthma Counselor visits.

### ***Rationale***

Most caretakers will not come forward saying they want to change their behavior. Decisions to change behaviors often fluctuate and are accompanied by ambivalence. Understanding this process has been aided by the development of the stages of change model by Prochaska and DiClemente in which people are said to move through stages of *precontemplation* (not thinking about change) *contemplation* (ambivalent about change) and *action*. Talking to caretakers about where they are along this continuum requires flexibility from the counselor.

These observations are the foundation for the brief motivational interviewing approach to be used in a home visit setting. It is an attempt to find new ways to work with ambivalence and represents something close to the polar opposite of advice-giving.

It arose from the observation that overt persuasion of someone who is feeling ambivalent about behavior change is likely to be counterproductive, leading to some form of resistance, also known as the confrontation-denial trap. For example, “I don’t you think you should...” then leads to “Yes, but....”

This technique involves a set of concrete strategies that provide structure and direction to a session. The following menu of strategies is used according to varying degrees of readiness to change. Each item on the menu, when fully completed, lasts 5 to 15 minutes.

### ***Acknowledging Ambivalence and Readiness to Change***

Ambivalence is common and normal, and has to do with having internal pros and cons about a given behavior change. The goal of motivational interviewing is to explore this conflict and to encourage patients to express their reasons for concern and the arguments for change.

On one end of the “readiness to change” continuum are patients who are not at all ready to consider change. On the other end are those who are in the process of decision making and actual behavior change. Those in the middle are in a state of ambivalence about their behavior. People can move backwards and forwards along this continuum. If the Counselor talks to a caretaker as if they were further along the continuum than they really are, resistance is the likely result. The first task therefore is to establish the subject’s degree of readiness to change, and then to select a strategy appropriate to this level of motivation. The decision about which one to use next is based on progress with the prior one. Readiness to move forward along the continuum usually emerges as a natural part of the interview process.

#### **The menu of strategies, levels 1 through 8:**

1. Opening strategy: lifestyle, stress, and target behavior
2. Opening strategy: patient’s health and target behavior
3. A typical day
4. The good things and the less good things
5. Providing information
6. The future and the present
7. Exploring concerns
8. Helping with decision-making

While strategies towards the top can be used with almost all patients, those towards the bottom can only be used with the smaller number who are entering decision making.

The caretakers with whom you will be working already know their patient has asthma, have consented to participate in the CHAMPS Intervention and have completed the Baseline Practice Visit, all of which should create a certain level of consciousness to the issues you'll be raising. Usually start somewhere in the middle of the menu, using either "a typical day" or "the good things and less good things" (e.g., about this house, about smoking indoors).

If the family openly expresses concern, for example, "I know the cat can make Jose wheeze" or "I've noticed Tanya has trouble coughing when she's in bed" you can move towards the bottom of the menu, for example, "exploring concerns". If you do not get these "green lights", or the caretaker is clearly not interested in your agenda, you may have to settle for getting no further than providing information. Be sure to avoid going too far down the menu if the subject is not ready.

Caretakers will not necessarily be expecting or wanting to receive lifestyle advice during a home visit. Try to begin a subject with a neutral and non-judgmental question like: "How do you feel about us talking about cleaning the carpets (or smoking outdoors, having exterminators come into your house, etc.)." Especially with ETS, avoid references to "your problem".

Below is a general discussion of each of the eight stages. Start in the middle of the list, and go either backwards or forwards on the menu depending on the signals you get.

#### **Level 1: Opening strategy-- Lifestyle and stresses**

Talk generally about the person's current lifestyle and stresses; raise the subject "Where does your cat/dog, smoking, bedroom cleaning fit in?" People usually point to the genuinely positive aspects of the topic, if there are any (i.e. "the dog is part of the family" or "smoking in front of the TV helps me relax"). This helps the interviewer understand the positive aspects of the topic from the caretaker's perspective.

#### **Level 2: Opening strategy—Patient's asthma and the identified issue(s)**

If such a prompt is needed, issues identified in Level 1 can be put into the context of the patient's asthma symptoms. How does your (cat/dog, bed, your musty basement, indoor tobacco smoke) affect your patient's asthma?"

***Start with either Level 3 or 4 and then retreat to Levels 1 and 2 if needed or proceed on if able.***

#### **Level 3: A typical day**

Discussing a typical day helps to build rapport, helps the caretaker talk about current behavior and lifestyle in detail, and helps you assess their degree of readiness to change. Be sure to make no reference to problems or concerns. Such terms should come from the caretaker at this level. You might start with, "Can we spend the next five minutes going through this day from beginning to end?" Pacing is important with this strategy. The interviewer needs to push ahead if the pace is too slow or backtrack if the pace is too fast. You should not inject any of your own solutions if problems are raised, but acknowledge them and come back to them once this exercise is completed.

#### **Level 4: The good things and the less good things**

This can be used as an alternative to Level 3. Again, it helps to build rapport, provides important information about context, and enables an assessment of readiness to change. This is a good opening strategy if you think there may be genuinely positive things about an identified indoor asthma trigger, from the caretaker's perspective. Examples might include a furry or feathered pet, a house that may be leaky and moldy but otherwise meets the needs of the family, or environmental tobacco smoke. Note the exclusion of the terms "problem" or "concern". The caretaker unwilling to consider change will resist

at the point where the “less good things” about behavior is raised. If this happens, you should still see if the patient is interested in receiving information, but will probably need to stop there.

### **Level 5: Providing information**

Sharing health information will be an important part of the Counselor’s role, and there are some general principles that will make this work as productive as possible. First, try to find the right moment and ask permission to share information, ideally when the caretaker seems curious, actually asks for information, or at least is not in a defensive frame of mind. Consider an opening question like: “Would you be interested in knowing more about the effect of \_\_\_\_ on your patient’s asthma symptoms?” Because you are on potentially sensitive ground here, the information should be provided in a neutral and non-personal way, referring generally to “what happens to patients with asthma” rather than to this particular patient. Also, refer to what the experts think, rather than what you think. When you have finished, ask, “I wonder what you think about this information? How does this tie in with.... (the way you typically launder the bed, the way you are used to smoking)...etc.

Also note:

- Some people don’t want information, which is why it is important to ask permission first, and gauge their reaction before launching in.
- If personal issues come up in the course of presenting this information, (i.e., how do I remember to.....) take the time to discuss these. Such a discussion takes you to the final levels (6, 7 and 8).

### **Level 6: The future and the present**

This strategy can only be used with caretakers who are at least concerned to some degree about the indoor trigger in question, and where some behavioral changes will be needed to make a difference. Focusing on the contrast between the caretaker’s (and patient’s) present circumstances and the way she or he would like them to be in the future often elicits a discrepancy, which can be a powerful motivating force. A useful opening question is, “How would you like these things (where the cat sleeps, where Uncle Jack smokes) to be different in the future?” After identifying these things, you can focus on the present: “What’s stopping that change from happening?”

### **Level 7: Exploring concerns**

This is the most important strategy of all, since the caretaker explains their reasons for concern about a particular environmental issue as it relates to their patient’s asthma. Either concerns about the environmental issue or the patient’s asthma are constructive here, as they build a case for behavioral change. The first question, for example, might be, “Do you have concerns about (issues identified in prior sections, e.g. your pet, cigarette smoke, your patient’s bed, the roaches in your kitchen) and your patient’s asthma? If so, what are they?” Explore in detail whatever concern is raised. If more than one concern is raised simultaneously, deal with them one at a time. As time permits, ask: “What other concerns do you have about \_\_\_\_\_ and your patient’s asthma?”

Also note:

- To the extent possible, avoid rushing. Use open-ended questions like: “Can you give me an example?” or “What concerns you most about this?”
- Avoid moving too far away from exploring these concerns.
- Highlighting discrepancies in the caretaker’s statements, which often appear after using this strategy, can lead to discomfort. Be supportive and do not rush the caretaker into a decision to change. Let them raise this topic.

## **Level 8: Helping with decision-making**

This strategy can only be used with patients who indicate some desire to make a decision to change. At this delicate stage, a push too far from the Counselor may produce a retreat by the caretaker. Therefore an opening question like “Where does this leave you now?” is more useful than a question like, “What are you going to do now?” The dialogue that follows should be reciprocal. Be careful to avoid the “expert problem-solver trap” by simply telling the patient what to do and how to do it. It is possible to provide information and concrete advice without undermining the patient’s autonomy. To this end, the following eight key guidelines may be used when helping with decision-making:

### ***Eight guidelines for helping with decision-making:***

- Do not rush patients into decision-making.
- Present options for the future rather than a single course of action.
- Describe what other families have done in a similar situation.
- Emphasize that “you are the best judge of what will be best for you”.
- Provide information in a neutral, non-personal manner.
- Failure to reach a decision to change is not a failed consultation.
- Resolutions to change often break down. Make sure that patients understand this and do not avoid future contact regarding the issue discussed if things go wrong.
- Commitment to change is likely to fluctuate. Expect this to happen and empathize with the patient’s predicament.

## **Teaching and Communication Strategies**

These tips are helpful for both individual and group sessions.

### ***Start from Where the Family Is and Build from There***

What you think is important about a patient's asthma may not be what a patient or parent thinks is important. Address the caretaker's concerns first before launching into explanations of what people "should" know. In AC1: Practice Visit, you will be eliciting common fears and misconceptions about asthma (refer to the [Conducting Individual Counseling Sessions section](#) for more information).

### **Caretaker Concerns**

Some common concerns of caretaker that may be conveyed to the patient include:

- Will my patient be addicted to asthma medicines?
- Aren't steroids those things athletes take that have bad side effects?
- Will the medicines stop working over time?
- Could my patient get an overdose of medicine that would make him really sick or even kill him?
- Even though I know what to do, I don't think I could do it.

### **Patient Concerns**

Some common concerns of patients include:

- Will I be able to play team sports or play at all?

- Will it go away? Will I grow out of it?
- Asthma attacks just come out of nowhere.
- Will I be able to handle an asthma attack at home? at school? at the playground?

Refer back to your notes from AC1: Practice Visit while preparing for subsequent sessions and incorporate any misunderstandings, fears, or questions into your lesson plans. When going over information, observe people to see if they look puzzled or worried. If so, encourage them to ask questions or talk about any concerns. Try incorporating these questions when appropriate:

- What concerns you (or bothers you) most about \_\_\_\_\_?
- Is there anything you have been thinking about that you want to ask me?
- Is there anything I just said (or that we just read) that you are not happy about or that you want to talk more about?

### ***Be an Active and Caring Listener***

There are many ways in which listening skills show people that you care and encourage their participation:

- Pay attention when someone is talking. Don't look at your watch or at papers.
- Look at the person, smile.
- Let people know you are listening by nodding, or say "I see" or "uh huh."
- Lean toward the person to show you are listening.
- Sit down with people, don't stand over them.
- Let people talk. Do not interrupt.
- Respect what each person say, even if you disagree.
- Keep listening.

### ***Ask Questions that Require More than a Yes or No Answer***

- What makes you feel that way?
- What are you feeling now?
- What do you think could be the reason?

### ***Help the Family Recognize Their Emotions***

- It sounds like you are pretty angry.
- It sounds like you feel really proud of that.

### ***Use the 3 R's: Rehearse, Repeat, Reinforce***

- Rehearse:
  - Demonstrate skills to the patient.
  - Ask people to demonstrate back to you what they have learned and to each other.

- Repeat:
  - Repeat key points 3 times during a session.
  - Have more than one person repeat these points.
- Reinforce:
  - Each subsequent session should reinforce what you have asked the person to do.

**Promote Understand and Learning**

- Teach not only what must be done, but how to do it.
  - e.g., in-depth knowledge alone of dust mites won't stop exposure and prevent asthma attacks, but proper remediation activities to eliminate dust mite exposure will.
- Keep explanations brief and to-the-point.

**Write Clearly**

- Point out difficult words and read them out loud to show how they are written.
- Print in large letters; experiment on your own with different sizes to test legibility at different distances.
- Use traditional format for all correspondence.
- Keep it simple, with abundant white space.
- Use upper and lowercase letters (not all capitals).
- Do not abbreviate.
- Do not use contractions; write out "do not" and "cannot."
- For emphasis, underline rather than high-light.

**Avoid Difficult or Challenging Terminology**

**Use words that can be understood, without too much medical or asthma jargon.**

<u>It is best to say</u>	<u>Instead of saying</u>
People with asthma .....	Asthmatics
Things that start attacks.....	Triggers
Asthma attack .....	Asthma episode
Thing you are allergic to.....	Allergen
Bothers you.....	Irritate (physically)
Upsets you .....	Irritate (emotionally)
Swollen.....	Inflammation

**Avoid words that may mean something different to patients.**

<u>Best to say</u>	<u>Instead of saying</u>
Stay away from .....	Avoid (may mean "ignore")

Sick or have a cold .....Have an infection (this means infected cut)  
All the time.....Always

**Avoid words or expressions that make assumptions about a patient’s living situation that makes him/her feel left out.**

<u>Best to say</u>	<u>Instead of saying</u>
At home.....	At your house
People in your family .....	Your caretakers’, mother, father
The doctor or nurse .....	Your doctor
The room where you sleep .....	Your bedroom

***Encourage the Family to Share Information with Family Members, Friends, Teachers, and Doctors***

Family involvement is critical to the program’s success. Encourage people to:

- Try out the activities with their families.
- Bring questions back from the family.
- Show new skills to the family.
- Use what they have learned.

***Focus on Empowerment and Confidence-Building Skills***

Remember these five steps to behavior change:

1. Know what to do and how to do it.
2. Believe it can be done.
3. Try it once.
4. Get reinforcement.
5. Continue to do it.

***Focus on the Information that Will Be Most Useful for the Family***

People need to know what to do and how to do it (e.g. in-depth knowledge of lung anatomy will not help stop an attack, but using an inhaler properly will.). Keep explanations brief and appropriate. For example, saying "If you use the inhaler the right way, more medicine gets in and can work" is more appropriate than long explanations of how medicines help decrease swelling, relax muscles etc. Practicing how to sit and relax is much more helpful than simply saying that relaxing will help if an attack starts.

**Table 1: Ways to Promote Learning**

Promote learning	Example
Gather information about the family	Ask the caretaker what their greatest concern is regarding the indoor environment and their patient’s asthma
Address barriers	Discuss options and ways to overcome concerns
Start with small steps and short-term goals	Demonstrate what can be done
Provide feedback and follow-up	Recognize what the caretaker has done and look for this again at the next visit

***Session-planning using the GATHER Method***

Try using the steps in "GATHER" to organize your individual family session. This will help you focus on empowering people to make decisions about what they want to work on next.

The letters in GATHER stand for:

- G = Greet** the client
- A = Ask** about needs
- T = Tell** about asthma issues that need work
- H = Help** Client decide which asthma issue, problem or obstacle to work on next
- E = Explain** more about the chosen issue, problem or obstacle
- R = (Wrap up) and Return** visit (or phone call) scheduled

***Problem-solving using the STAR Method***

Teach the families the STAR method for problem-solving.

- S** is for **Stop**.....Stop and figure out what the problem is.
- T** is for **Think**.....Think of all the possible ways to solve the problem.
- A** is for **Ask**.....Ask yourself what would happen with each choice.
- R** is for **Respond** .....Respond and make the best choice. Test it out.

To help the family learn the STAR principle, consider walking them through each of the steps as they might apply to allergen remediation in the family’s home.

**Special Issues When Working with Young Patients**

Asthma education can be confusing at any age. Patients may have a particularly difficult time understanding the concepts being taught during the counseling sessions. In particular, patients may need extra help in the following areas.

***Expressing Themselves***

Young patients often take a long time to express themselves or “get to the point.” They get easily sidetracked or off on long-winded tangents that can distract from the counseling session.

Respectfully, but firmly, move things along. It may also be necessary to gently cut off any patient who gets off track. (“Yes, that can happen, but now let’s talk about what happens at home.”)

### ***Going from the General to the Personal***

Young patients have trouble going from the general to the personal and vice versa. They may think that all the asthma clues listed in their handouts must be their asthma clues, or that all things listed in the handouts start their asthma. They need help understanding that some things apply to them while others do not, and that what applies to them might not apply to someone else and vice-versa. The Asthma Counselor must constantly reinforce the concept that each patient’s asthma is different.

### ***Understand Cause and Effect***

Young patients (especially those under 8) have difficulty understanding cause and effect. Explicitly explain the cause and effect relationship to young patients – do not expect them to figure it out using logic. During Session 1, for example, you can spell out a sequence of events that cause an asthma attack (i.e., first your breathing is fine, then you get around something that bothers your lungs, then you start to feel your asthma clues and then, if you do not do anything about the clues, you get an asthma attack.)

### ***Understanding How the Body Works***

Young patients are often very confused about the body’s systems and how they work. While they may have reasons to identify the throat, heart, brain, stomach, and blood, they are less likely to be familiar with lungs. In past experiences with patients with asthma, many pointed to their throats when asked where their lungs were. When shown a picture of a doctor listening to a patient’s chest with a stethoscope, many patients insisted that the doctor was listening to the heart, and emphatically denied that the doctor could be listening to the lungs.

Keep anatomical explanations as simple as possible. Focus on what patients can actually see, so that they can establish solid connections in their minds.

### ***Reading and Writing***

Do not assume that age establishes reading and writing ability. When referring to written material, preface your remarks with something like “there may be words that people have a hard time reading.”

## **CHILD ASTHMA RISK ASSESSMENT TOOL (CARAT) AND HOME ENVIRONMENT OBSERVATION (HEO)**

### **CARAT**

The CARAT is a tool designed to provide a personal risk profile for a patient with asthma, which prioritizes and aids the interventionist with asthma counseling discussion points. The CARAT should be administered before the Asthma Counselor begins the counseling intervention.

#### ***CARAT Assessment***

The CARAT looks at a variety of potential risks for a patient and then creates a report tailored specifically to the factors affecting that patient. Components evaluated include:

- Medical care
- Adherence
- Asthma responsibility
- Psychosocial factors (patient well-being, adult well-being)
- Asthma attitudes
- Sensitivity to allergens (skin test results)
- Environmental risks

The environmental risks assess by caretaker self-report the patient's exposure to:

- Cockroaches
- Tobacco smoke
- Pets
- Rodents
- Mold
- Dust mites

#### ***CARAT Output***

After the CARAT has been completed, a report is generated that provides various education modules corresponding to the patient's risks. These modules will offer an initial description of the patient's unique risks and provide tailored counseling and information materials. The counseling and information materials from the CARAT may be supplemented with additional educational materials from this Manual, as well as other educational materials available at the practice, as deemed appropriate. In this way, the CARAT:

- Identifies individual asthma risks
- Provides a summary of the risks
- Guides initial conversations
- Personalizes asthma education
- Guides intervention activities

### **HEO**

The Home Environment Observation questionnaire is designed to help the counselor identify the patient's unique environmental exposures. While the CARAT provides a comprehensive assessment on a variety of risk factors that may impact the patient's asthma to provide a complete risk profile, the HEO

is focused solely on environmental risks. The HEO supplements the CARAT output by providing a more reliable, first-hand assessment of the patient's environmental exposures.

For example, the family may not realize they have problems with moisture or mildew when completing the CARAT, but during the home assessment, staff may find that mold and mildew exposure are significant problems for the family. If the patient was allergic to mold on the allergen sensitivity test, adjust counseling topics to focus on mold and mildew remediation, even though the CARAT may have listed them as a relatively low priority.

Likewise, the family may be embarrassed about some problems (e.g., cockroaches or smoking in the home) that they decided not to report when filling out the CARAT. Visual inspection by a member of the practice team is the only way to be certain about each patient's unique exposures.

The CARAT output should be used throughout all asthma counseling visits to help tailor the comprehensive intervention to the patient based on all risks identified (e.g., medical, adherence, psychosocial), but beginning with the first counseling session in the home, supplement the CARAT information with the HEO to further prioritize the environmental intervention modules.

## ENVIRONMENTAL INTERVENTION OVERVIEW

Patients in the CHAMPS Intervention group will receive a tailored environmental asthma counseling intervention based on each patient's sensitization and home environment exposures. Every environmental intervention will consist of at least an educational component. When possible, practices should also attempt to provide families with the equipment and supplies necessary to remediate indoor allergens and irritants. If the practice is unable to provide certain supplies directly, the staff should be prepared to provide the families with information about how to obtain supplies on their own and instructions on how to use them properly.

### Environmental Intervention Goals

The goal of the environmental intervention is to provide multifaceted, home-based comprehensive, patient-tailored counseling to reduce indoor allergens (specifically cockroach, dust mite, rodent, pet, and mold), environmental tobacco smoke, and other common irritants in the homes of patients with asthma. This consists of a short-term goal to help the families *remediate* the allergen burden in their homes and the long-term goal to *maintain* allergen-free homes.

Every patient's allergen sensitization and environmental exposure is unique, as is each family's ability to recognize and control factors that trigger the patient's asthma symptoms. The goals of the program will be achieved by undertaking the following actions:

- Increase the family's understanding of how the indoor environment affects asthma
- Educate the family about the importance and techniques of reducing exposure to allergens and irritants
- Provide equipment and supplies to help the family implement the recommended environmental measures
- Help the family create an environmentally "safe sleeping zone" in the area that the patient sleeps

### Remediation and Maintenance

The combination of remediation and maintenance is essential to the effectiveness of this intervention.

The *remediation* goal involves identifying allergens that the patient is allergic to and reducing exposure to these allergens, as well as environmental tobacco smoke, in the home.

The *maintenance* goal is to insure that the removal of allergens from the home continues long-term. This goal is accomplished by working with the family to create a long-term allergen-free home for the patient using a five-step approach:

1. **ALERT** the caretaker to the problem – that the indoor environment affects asthma
2. **EXPLAIN** that there is something to do about the problem – by identifying the specific allergens that the patient is allergic and exposed to, and by removing them
3. **DEMONSTRATE** the allergen removal techniques and provide a rationale for each
4. **PROVIDE** the tools and skills needed to accomplish the allergen removal
5. **MOTIVATE** the caretaker to implement the environmental protocol over time, including identifying barriers or obstacles to implementing the new "preventive" behavior long-term

## **Environmental Intervention Activities**

Activities covered by the environmental intervention include:

- Identifying of allergens that the patient is sensitized to, as determined by allergen skin or serum IgE testing
- Scheduling home visits for the home evaluation and intervention
- Identifying allergens that the patient is exposed to, as determined by home assessment
- Identifying which intervention modules to cover based upon the exposures identified in the home evaluation assessment and the allergens to which the patient is sensitized
- Using the modules to provide patient-tailored counseling for the family
- Providing the family with environmental remediation supplies depending the patient's sensitivities and exposures

## TAILORING THE INTERVENTION

The CHAMPS intervention differs from most asthma interventions because it is tailored to each patient's unique combination of asthma risk factors, environmental exposures, and allergic sensitivities. This patient-specific approach allows counselors to focus on topics that are most relevant to the patients and their families, which leads to greater patient engagement and participation in managing their asthma.

### Creating a Patient Profile

Staff will create a patient-specific profile for each patient in the CHAMPS intervention. The profile is used to provide counseling that is tailored to each patient. The patient-specific profile is developed using two tools provided in the CHAMPS intervention:

1. [Child Asthma Risk Assessment Tool \(CARAT\)](#)
2. [Home Environment Observation \(HEO\) Questionnaire](#)

The CARAT is an online tool that collects information about each patient's asthma and environment, and uses a scoring algorithm to create a customized asthma profile and treatment plan. The CARAT questionnaire should be completed by the patient (or caregiver) with oversight from the Asthma Counselor. The Asthma Counselor will need the results of the patient's allergen sensitivity test to include in the questionnaire. After entering the answers to the questionnaire on the CARAT website, the Asthma Counselor can run a Risk Report that indicates the asthma risk factors specific to the patient and assigns a score to each risk factor to indicate which ones pose the most risk to the patient's asthma. The report also includes counseling materials for each risk factor, which the Asthma Counselor can use in their counseling sessions.

The Home Environment Assessment Questionnaire is completed in the patient's home by the CHAMPS staff. The questionnaire asks about environmental asthma risk factors in the patient's home, including potential allergen and irritant exposure. A thorough assessment of the patient's home by a member of the team is important for identifying risk factors that patients and their families are not able to assess on their own. The results of the assessment are used to further tailor the counseling and to provide guidance on remediating asthma triggers in the home. The home environment is an especially important focus for asthma management because it is the place where patients spend the majority of their time, where indoor allergens and irritants are most common, and where patients have the most control over changing and improving their environment.

### Asthma Counseling Modules

#### ***Asthma and Asthma Medications***

All patients will receive general counseling on asthma disease and common asthma medications. This module should be delivered at the first counseling visit. Counselors may work with the family to cover individual topics they deem most relevant, but no formal tailoring is required for this module.

#### ***Safe Sleeping Zone***

Regardless of the number of positive allergy tests to indoor allergens, the staff will implement the Safe Sleeping Zone for all patients, to establish an area for the patient to be as free as possible from allergens and irritants. Although every patient receives the Safe Sleeping Zone module, the counseling and educational components of the module should still be tailored to the patient's unique sensitivities and exposures. For example, if a patient is sensitive and exposed to cockroach but has no sensitivity or

exposure to cat, the counselor should explain that the remediation techniques will help with cockroach exposure and ignore references to cat allergen.

### ***Tailoring Other Modules***

After implementing the Safe Sleeping Zone module, staff will proceed through the other modules giving priority to the allergens to which the patient is sensitive and exposed (as indicated in the CARAT and HEO questionnaire), and to which remediation techniques the family is most willing and capable of implementing.

### ***Sensitivity***

Begin with the patient's allergic sensitivities as determined by either the allergen skin test or IgE test. The results of the test will indicate the allergens to which the patient is sensitive. It can be tempting to assume the size of the wheal (skin test) or level of IgE response indicates an amount of sensitivity, but the test results do not necessarily represent the level of sensitivity. For each allergen tested, read the test result as either positive or negative.

For patients who are negative to all the allergens samples, review non-allergen triggers of asthma symptoms including Environmental Tobacco Smoke, cold temperature, and exercise (refer to Modules [7](#) and [8](#)).

### ***Exposure***

The patient's environmental exposures are determined by a combination of self-report (using the CARAT) and the home assessment (using the HEO questionnaire). For example, if a family reports an exposure cockroach during the CARAT, you should consider the patient exposed to cockroach, even if you do not find evidence of cockroach during the home assessment. Likewise, if the family reports no exposure to cockroach during the CARAT, but you find evidence of cockroach during the home assessment, you should consider the patient exposed to cockroach.

### ***Family's Ability and Willingness to Change***

Ideally, families will be able and willing to follow all remediation techniques provided in the modules. However, the counselor must pay careful attention to the family's ability and willingness to change, and take this into consideration when providing counseling. Refer to the [Counseling and Teaching Strategies section](#) for additional information.

### ***Examples of Challenges to Implementation***

- Some families may have problems limiting the tobacco smoke to which the patient is exposed. Smoking is very addictive, and some family members may not be willing to give up smoking.
- Some families may have pets to which the patient is allergic but be unwilling to part with their pets.
- Some families may have factors outside their control which impact allergen remediation. If a family lives in rental housing, they may rely on a landlord to repair things such as water leaks or structural problems. If the landlord refuses to make changes or improvements, the family may not have the means to fix these problems and may need help identifying resources for housing advocacy.

If the counselor focuses sessions on topics that the family is either unwilling or unable to change, the counseling will be ineffective and the counselor may run the risk of damaging the relationship between the counselor and the family. Families may be insulted by counselors attempting to change their

behavior (e.g., smoking or getting rid of a pet) or they may be discouraged by a focus on remediations that are outside of their control (e.g., home improvements).

This does not mean the counselor cannot or should not discuss these topics with the family, but it means the counselor should be sensitive to the family's unique needs and situation. The counselor should also look for areas of improvement that may serve as a compromise. For example, a family may not be willing to get rid of a pet, but they can keep the pet out of the patient's bedroom. Or, a family may not be willing to give up smoking, but they can try to smoke outside of the home.

### **Addressing the Family's Concern**

Often, a family will indicate that they are highly concerned with a particular allergen to which the patient is exposed. If the patient is sensitive to that allergen, the counselor should use the family's interest to his/her advantage, and focus counseling resources on that particular topic. However, if the patient is not sensitive, the counselor needs to be tactful in addressing the family's concern without letting the family distract from the primary counseling objectives.

For example, if a patient is not allergic to cockroach, but the family has cockroach problems in the home, the family may want to discuss cockroach remediation. If the patient is sensitive and exposed to other allergens, focusing on cockroach remediation may not be a priority for the Asthma Counselor. However, failing to address cockroach may damage the relationship between the counselor and the family and by addressing the families' concerns to cockroach, the counselor is improving the overall health of the home.

In these cases, the counselor should acknowledge the family's concern, but carefully redirect the conversation to those allergens/irritants of higher priority. If time allows, the counselor can spend some time further discussing the family's specific concern at the end of the visit. The counselor may also give the family educational materials or referrals to other information for dealing with the allergen before concluding the visit.

### **Combining the Elements into a Tailored Intervention**

The counselor is responsible for taking the information about sensitivity and exposure and prioritizing the topics for counseling. The CARAT and the HEO questionnaire are tools to help the counselor develop the tailored intervention. The counselor must then work with the family to determine which modules the family is willing and able to implement.

### **Considerations**

- If a patient is not allergic to a particular allergen, staff will not prioritize that module with the family. If the patient is not allergic to any of the allergens, focus counseling on Modules [1](#), [2](#), [7](#), and [8](#).
- In the rare case a patient is allergic, but no exposures are identified, prioritize the modules based on sensitivity. Lack of visual confirmation does not equate to lack of exposure.
- Environmental Tobacco Smoke (ETS) is an irritant, not an allergen that leads to allergic sensitization; sensitivity is therefore not a consideration with ETS. (ETS is covered in Module 7). ETS has been repeatedly shown to aggravate asthma symptoms and anytime a patient is exposed to tobacco smoke in the home, the tobacco smoke module should be considered a high priority topic for counseling.
- Often, a patient will have multiple sensitivities and exposures. Ideally, the counselor can schedule multiple individual sessions to cover each module thoroughly with the family.

However, if visits are limited, the counselor will focus on the allergen that seems to be the biggest problem, and that the family is willing and able to remediate.

## **An Example of Tailoring**

To appreciate the value of tailoring, consider the example of Maya.

Maya is a 9-year old girl with asthma. She has a prescription for a “rescue inhaler” that she uses to treat her symptoms when they get bad, but doesn’t take any other medications for asthma. Maya complains that she often wakes up at night with coughing and tightness in her chest. A month ago, Maya had an asthma attack and had to visit an urgent care practice for treatment. Maya lives with her grandmother, Nana, and pet cat, Dash, in a two-bedroom apartment in a four-story apartment building. Nana provides well for Maya, but she has a fixed income and limited financial resources. Today she is visiting your health center because she is wheezing and coughing.

After seeing Maya, a physician in your practice refers her for enrollment in the CHAMPS intervention. Nana agrees and they fill out the CHAMPS questionnaires with your staff. Maya has an allergen skin test which shows that she is sensitive to dust mites, cockroaches, mold, and dogs. She does not show any allergic reactions to cats, mice, or rats.

The CHAMPS team schedules a home evaluation visit for a week after her visit. During the home assessment, the intervention team notices that Nana keeps a well ordered home, with very little mess, but the apartment is showing its age. The carpets, like the upholstered furniture and curtains, are old and dusty, and Nana does not have a working vacuum. The drain pipe under the kitchen sink leaks and though Nana has asked the superintendent to fix it, he keeps putting it off. Nana says she has never seen cockroaches in her home, but the intervention team finds evidence of cockroach stains (i.e., droppings) in a cabinet beside the sink. The team also finds evidence of where mice have chewed a hole in the bottom of the linen closet in the bathroom. Maya has her own bedroom where she sleeps on an old bed with a half-dozen of her favorite stuffed animals. Dash occasionally sleeps on the chair in Maya’s room. Nana does not smoke.

### ***The Challenge***

Maya has a variety of factors that could be exacerbating her asthma, but where should her care provider begin? Attempting to discuss all of the risk factors in a single visit will be overwhelming – how can Nana hope to learn everything and remember it? How should her provider prioritize which risk factors are worse than others?

### ***A Tailored Solution***

Now, consider the following example of how the Asthma Counselor creates a tailored counseling plan for Maya and her grandmother.

The Asthma Counselor reviews Maya’s allergen skin test results, environmental asthma risks from the HEO questionnaire, and the risk profile from the CARAT questionnaire. These tools help the counselor develop a customized patient profile. The CARAT indicates that Medication Adherence and Dust Allergen exposure are two of the biggest risk factors. The counselor also notes that on the HEO, the team found evidence of cockroaches, mice, and moisture leaks. The family did not realize they had problems with roaches and mice, or that their leaky faucet was a major source of moisture in the home. The counselor adjusts her counseling plan to incorporate these additional risk factors for roach, rodent, and moisture.

After reviewing all of the information, the counselor develops a counseling plan focused on 4 key risk factors – Medication Use, Creating a Safe Sleeping Zone, Cockroach Remediation, and Mold Remediation. The counselor notes that some additional risk factors can be deprioritized because the patient is not sensitive and exposed (e.g., rodents are in the home but Maya is not sensitive, Maya is sensitive to dog but not exposed to one in the home).

At the first counseling session, the counselor spends time getting to know the family and discussing the counseling plan. During this time, the counselor tries to identify additional areas of concern and barriers to implementing the counseling plan. The counselor makes the following observations:

- Nana is very proud of the fact that she keeps a clean and orderly house. Nana might be sensitive when it comes to discussing ways to improve her cleaning. The counselor will need to gently broach some of these topics with Nana to ensure she doesn't offend her, and so she can convince her to implement new cleaning strategies.
- Nana is very cost conscious. Counseling the family to implement expensive solutions (e.g., replacing their carpets with solid flooring is not likely to be financially feasible for the family.)
- Nana's landlord is difficult. Counseling Nana to fix the leaky faucet is not helpful if the landlord is unwilling to help her. The counselor needs to work with Nana, as a partner, to come up with solutions to this problem, rather than making her feel helpless.
- Nana is concerned about Maya's cat, Dash. Maya and Nana love Dash, but Nana has heard cats can cause asthma to be worse. The counselor needs to address this concern, but she can point out that Maya is not sensitive to cat. This is an opportunity to educate Nana on Maya's allergies and how the combination of sensitivity and exposure are needed for allergens to make asthma worse.
- Nana is highly motivated to help Maya get better and eager to do her part. The counselor can tap into this motivation and eagerness when counseling to ensure the family follows through on her recommendations.

The Asthma Counselor takes all of this information and adjusts her counseling plan accordingly. Now, the counseling sessions can begin in earnest with the counselor taking one topic at a time and working through it with Nana and Maya.

## CONDUCTING INDIVIDUAL COUNSELING SESSIONS

### Pre-Intervention Activities

Prior to the initial asthma counseling visit, information will be gathered from the patient and their family about their medical care, asthma control, symptoms, allergen sensitivity, and information about the family's living environment using the CARAT and HEO. The counselor must review and become acquainted with the patient's risks, sensitivities, and exposures before a session so as to prioritize the goals and needs of the patient, creating a patient-tailored intervention. Refer to the [Tailoring the Intervention](#) and [Environmental Intervention Overview](#) sections to learn more about creating a patient-tailored intervention.

### Session Goals and Intervention Modules

The primary goal for each counseling session is to inform and counsel the family in ways they can effectively manage the patient's asthma and limit exposures to allergens and other asthma triggers. This is accomplished by guiding the family through the Asthma Counseling Intervention Modules. There are eight modules:

- [Module 1: Asthma and Asthma Medications](#)
- [Module 2: Safe Sleeping Zone](#)
- [Module 3: Cockroach](#)
- [Module 4: Rodent](#)
- [Module 5: Furry Friends](#)
- [Module 6: Mold](#)
- [Module 7: Environmental Tobacco Smoke](#)
- [Module 8: Other Asthma Triggers](#)

At a minimum, all patients should receive counseling on the un-tailored modules – Modules 1, 2, and 7. (Note: Module 7 is considered un-tailored because every family should be counseled on the dangers of tobacco smoke exposure, even if no one in the patient's home smokes.) Additional interventions should be prioritized based on the patient's exposure, sensitivity, and the family's willingness to learn and change. Counselors may cover more than one module at a time with a family, but care must be taken to avoid overwhelming the family with too much information.

Work on the problem together with the family. Each module has a list of goals. Review this list with the family, cross out ones that do not apply, add specific goals that pertain to the family, and identify barriers to implementation and discuss methods of solving them.

### Guidance for Determining which Modules Patients Receive

The following guidelines may be used as a quick reference for determining which modules each patient receives during counseling. Refer to the [Tailoring the Intervention section](#) for a thorough explanation of how to create a patient-tailored intervention.

#### ***Module 1: Asthma and Asthma Medications and Module 2: Safe Sleeping Zone***

All patients receive Module 1: Asthma and Asthma Medications and Module 2: Safe Sleeping Zone

### **Module 3: Cockroach Module**

Implement the cockroach module if 1) the patient is cockroach skin/IgE test positive and 2) the patient is exposed to cockroach as determined by self-report (CARAT) or evidence from the home assessment (ERAT)

### **Module 4: Rodent Module**

Implement the rodent module if 1) the patient is mouse or rat skin/IgE test positive and 2) the patient is exposed to rodents as determined by self-report (CARAT) or evidence from the home assessment (ERAT)

Note: Some of the activities for the rodents module overlap with the activities for the cockroach module. Nonetheless, patients qualify separately for each module. Then during the visits, activities can be combined when a patient receives both modules.

### **Module 5: Furry Friends (Pets) Module**

Implement the pets module if 1) the patient is skin/IgE test positive to cat or dog and 2) has a cat or dog living in the home as determined by self-report (CARAT) or evidence from home assessment (ERAT).

Note: If the patient is only sensitive, and not exposed, encourage patient to wash hands after playing with friend or neighbor's pet and to keep face away from fur. If friends, babysitters, or relatives have furry pets, discuss with them the importance of reducing the time the patient plays with the pet and the need for the patient to wash his/her hands after petting the animal.

### **Module 6: Mold Module**

Implement the mold module if 1) the patient is skin/IgE test positive to at least one of the four molds tested (alternaria, aspergillus, cladosporium, or penicillium) and 2) the patient is exposed to mold as determined by self-report (CARAT) or evidence from the home assessment(ERAT).

### **Module 7: Environmental Tobacco Smoke**

Tobacco smoke is not an allergen and cannot be included in the skin/IgE test, but environmental tobacco smoke is known to be an irritant for people with asthma. Implement the last section of the module "how to reduce exposure to tobacco smoke from sources outside of the patient's home" for all patients. Implement the full smoking module if the patient is exposed to smoking at home.

### **Module 8: Other Asthma Triggers**

Apart from the indoor allergens, there are other irritants in the home that can exacerbate asthma. (Irritants differ from allergens in that they do not provoke an IgE response, which means they cannot be identified by a skin sensitivity or IgE blood test.) There are also a number of exposures to irritants and allergens outside the home, which can trigger asthma symptoms. Implement the Other Asthma Triggers module if:

- 1) the patient is exposed to other environmental asthma triggers as determined by self-report (CARAT) or evidence from the home assessment (HEO)
- or-
- 2) if the patient is negative to all indoor allergens tested

## **Preparing for the Session**

### ***Scheduling***

- For patients in the Excellent Standard of Care group, the session can be scheduled after a patient has a completed CARAT and the interventionist has had time to prepare an individualized intervention.
- For patients in the CHAMPS Intervention group, schedule the session after the patient has a completed CARAT, home evaluation, and allergen skin/serum IgE test, and the interventionist has had time to prepare an individualized intervention.
- Review all Asthma Counselor Checklists from prior visits including accomplishments and barriers, and Goals/Handouts with any revisions for prior modules
- Conduct counseling sessions in a setting that is conducive to private discussion. These sessions will be approximately 60-90 minutes.
- Allow at least a one-hour gap between counseling sessions.

### ***Preparing for the Session***

- For visits at the practice or another neutral practice, coordinate and schedule transportation for the families, if needed.
- For families that are driving to the session, notify them of any parking restrictions.
- For in-home visits, obtain directions to the family's home.
- Confirm the appointment 24 hours in advance with the family.
- Request that the caretaker bring asthma medications, spacer and peak flow meter and Asthma Action Plan (if available).
- For visits at the practice or another neutral practice, ensure the building is accessible (especially if the session is occurring before or after normal business hours).
- Review the patient's chart and the Asthma Counselor Checklist forms from previous sessions prior to their arrival for the session. Review accomplishments and barriers noted from previous sessions.
- Review information from CARAT and other baseline forms (e.g., allergen skin testing) to determine patient's sensitivity and exposure in preparation of explaining what the patient is allergic to and exposed to, and what the family can do to address the allergies and exposures.
- Place appropriate paperwork for the session in the chart prior to the start of the session.

### **Supplies**

- Calendar
- Demonstration equipment (e.g., inhaler)
- Appointment cards – to be given prior to the patient leaving the session
- Educational handouts
- Patient's chart
- Data collection forms and counseling checklist
- Environmental supplies or information for purchasing supplies (see below)

**Environmental Remediation Supplies**

Required materials for the intervention will vary depending on the allergens present in the home to which the patient is sensitized and the module being implemented. The materials consist of:

- HEPA vacuum
- Bedroom HEPA air filter
- Pail and cleaning utensils
- Non irritating cleaning supplies
- Mattress and pillow covers
- Trash bags
- Food storage containers

The individual supplies should be distributed to families as indicated in Table 2. Note that families only receive the supplies that correspond with their patient’s individual allergen sensitivities. In the case of environmental tobacco smoke, the patient should receive the supplies if there is a smoker in the home.

**Table 2: Supply Distribution Matrix**

Supplies	All Patients	Individual Patient Sensitivities				ETS*
		Cockroach	Pets	Mold	Rodent	
HEPA vacuum	X					
HEPA filter for bed room			X	X	X	X
Air conditioner for bedroom				X		
Food Storage		X			X	
Mattress/ Pillow Covers	X					
Cleaning Supplies	X					

\* ETS- Environmental tobacco smoke

The caretaker should receive a detailed explanation of the purpose and use of each item they receive.

The Asthma Counselor should assist with the set-up of the equipment at the home counseling session if the family has not already set-up the equipment or failed to set it up properly.

**Concluding the Session**

Each intervention session should be concluded the same way, as outlined below:

- Find a place to sit down with the caregiver and review what happened during the visit; work with the family
  - Review the main goals of the modules covered and cross out ones that do not apply
  - Address barriers to implementation and problem solve with the family

- Review the family’s accomplishments. This will be family-specific. This is positive reinforcement for whatever they have done since the study started.
- Keep the Caregiver Invested in the Project.
  - Ask if you have been clear about everything discussed. Ask if there is anything that is confusing that we should be reviewed again before you end the session.
  - Ask the family how helpful they thought the session was?
  - Ask how hard do you think it will be to do the things we talked about today?
- Discuss What Happens Next.
  - Schedule follow-up phone call for approximately one week from date of visit.
  - Tell the caregiver that you will be calling in about a week, and that you look forward to discussing with him/her ways that you can help him/her work on all these things.
  - Tell the caregiver briefly about what modules you intend to work on at the next home visit.
- Document the visit in the Asthma Counselor Checklist when you are back in the practice.

## MODULE 1: ASTHMA AND ASTHMA MEDICATIONS

Many families have a poor or limited understanding of asthma and disease management. Others, especially those with patients who have poorly controlled or severe asthma who have received numerous educational interventions, may be well versed on the topic but do not know how to translate this knowledge into behavior change. Asthma counselors will provide the families with an overview of asthma as a disease and how the family can take steps to better manage their patient's asthma.

### Handouts for Visit

- Allergy Skin Test Results
- Asthma Action Plan (if patient does not already have one)
- School Asthma Action Plan
- Tips for Taking your Medicine
- Using a Diskus
- Using an Inhaler
- What Happens Inside the Lungs during an Asthma Attack?
- What is Asthma?

### Checklist for Intervention Activities

#### What is Asthma?

Provide the families with a background on asthma. Even families who say they understand asthma or know about their patient's disease may benefit from the information in this section.

#### Definition of Asthma

- Give the patient copies of the "What is Asthma?" and "What happens inside the lungs during an asthma attack?" handouts.
- Ask the patient what they know about asthma and what questions they have about asthma.
- Go through the following characteristics of asthma with the patient:
  - "Asthma is a chronic disease. It is still present even if the person is not feeling sick at the time."
  - "Asthma can be controlled so that it doesn't bother the person."
  - "Asthma cannot be cured."
  - "People can die from asthma if they don't take it seriously and learn to control it."
  - "Asthma affects the airways. Airways branch like the roots of a tree. Air moves through the airways in and out of the lungs. Show airways on a poster, picture, or lung model."
  - "The airways of people with asthma are narrowed compared to healthy airways because of two changes:
    1. Bronchospasm of muscles outside the airways (like a clenched fist or like rubber bands).
    2. Inflammation, or swelling, mucus, and irritability inside the airways (like the inside of your nose when you have a cold or like a sunburn)."

- “When the airways are narrowed, it is hard to breathe (like trying to breathe through a straw).”

### **Asthma Triggers**

- Explain that when a person with asthma is near something that bothers their airways (called a trigger) the person's already "twitchy" lungs can become even more constricted, which can lead to an asthma attack.
- Explain the difference between irritants and allergens to the patients. Give examples:
  - Irritants: cold air, colds, stress, odors, dust, weather changes, smoke, exercise.
  - Allergens: furry and feathered pets, pollen, dust mites, mold, cockroaches, rodents.
- Let the patient know that you will discuss triggers at a later visit after the allergy skin test.

### **Signs of Asthma and What They Mean**

- Explain that your body sends you clues to tell you that it is getting harder to breathe.
- Explain each of the following signs of asthma:
  - Cough: trying to clear mucus.
  - Wheeze: air sneaking through narrowed airways.
  - Breathing hard and fast, chest tightness, widened nose, and sucking in between and above the ribs: body is working hard to breathe through narrowed airways.
- Explain that if the patient does not take action when he/she first feels the clues, he/she will have a lot of trouble breathing and will need help.

### **Quick-Relief and Controller Medicines**

- Explain that quick-relief medicines are taken as needed to make it easier to breathe. They are also called "rescue" medicines. Albuterol is an example.
- Explain that controller medicines are taken every day to prevent asthma, even when the patient does not have symptoms. An example is Advair.

### **Asthma Action Plan**

All patients should create an Asthma Action Plan, if they do not already have one. Give the caretaker an Asthma Action Plan and School Asthma Action Plan if the patient is school aged.

- Complete the Asthma Action Plan with the patient and the caretaker and give them a copy of the completed Plan.
- Explain that the Asthma Action Plan tells the patient what treatment to follow depending on what symptoms he/she has. It is designed to keep the bothers to a minimum. Explain the different zones:
  - Green Zone: Take controller medicine every day, 365 days a year (like sunscreen preventing sunburn).
  - Yellow Zone: Slow down for quick-relief medicine when symptoms of asthma begin.
  - Red Zone: Stop for emergency care.
- Discuss personalized scenarios to practice applying Asthma Action Plan zones.

## **Asthma at School**

These topics should be discussed at each visit for patients who are in school.

### **Be Prepared**

- Identify medications that need to be taken while the patient is at school (Albuterol, for example).
- Ask the patient and caretaker about the school's policy regarding medication administration. Does the school allow students to carry their own medicine or do they have to go to the health office? If the patient or caretaker does not know, ask them to find out as soon as possible. Follow up with them at the next visit.
- Give the patient or caretaker a copy of the “Asthma Action Plan” to take to the patient's school, including the “School Asthma Action Plan.” The Asthma Action Plan should be reviewed with the school nurse or the patient's teacher. Include symptoms specific to the patient.
- Discuss avoidance of triggers at school.

## **Asthma Medications and Treatment Plan**

### **Proper Medication Use**

- Determine which medications and treatment devices (i.e., spacer, peak flow meter, nebulizer) the patient uses or has been prescribed.
- Provide the pertinent medication and treatment handouts based on the medications and treatment devices the patient is using (choose from list below):
  - Using a Diskus
  - Using a Pulmicort Flexhaler
  - Using a Pulmicort Turbuhaler
  - Using an Inhaler
  - How to Use a Peak Flow Meter
  - Nebulizer Care
  - Reading the Numbers
  - Spacers

### **Benefits of Treatment**

- Make a list of asthma bothers for the patient.
- Identify short-term and long-term goals from the patient's list of asthma bothers. Explain that treatment can control these bothers.

### **The Risks of Treatment**

- Ask the patient what worries them about the treatment plan.
- Explain that the patient cannot become addicted to his/her medicines.

- Explain that daily controller medications are safe to take for months, even years, and that they work slowly and gently to make the airways stronger. None of the prescribed medications can harm the lungs.
- Ask the patient what they do not like about the medicine.
- Explain that there are several things the patient can do to get rid of the bad taste: rinse his/her mouth, brush his/her teeth, chew gum, and use a spacer with his/her albuterol.

#### **Following Through with the Treatment Plan**

- Give the patient the "Tips for taking your medicine" handout.
- Suggest taking medicine at meals or before brushing teeth as memory cues.
- Suggest someplace visible to keep the medicines.
- Discuss plans for dealing with multiple homes and caregivers, if applicable.

#### **Allergen Skin Test Results**

- Conclude the session by reviewing the Allergen Skin Test results, which will lay the foundation for the environmental intervention counseling modules to follow.
- Provide the family with a copy of the patient's Allergy Skin Test Results.
- Review and explain the results, emphasizing that the combination of sensitivity (as indicated by the test results) and exposure (when the patient comes into contact with the allergen) can lead to allergies, asthma symptoms, and possibly an acute asthma attack.

## MODULE 2: CREATING THE SAFE SLEEPING ZONE

To be delivered to all patients regardless of sensitization or exposure.

### Overview

The Safe Sleeping Zone is an area for the patient to be as free as possible from allergens and irritants. This area is most likely the bedroom where the patient sleeps, and therefore spends a lot of time. However, some patients do not sleep in a traditional bedroom. Some patients sleep on a couch, in the same room and/or bed as the parents, or in another place. The Safe Sleeping Zone module should focus on the area where the patient sleeps. After the module is applied to the patient's sleeping area, this objective is to extend the safe area to other key rooms where the patient spends time (e.g., kitchen, the patient's TV/family/play room) and ultimately the entire house. However, to avoid overwhelming the family, start with small goals (i.e., ridding the patient's bedroom of allergens) and then work towards bigger goals.

This module contains:

- Goals for the safe sleeping zone
- Checklist for Intervention Activities
  - Discussion Points
  - Remediation Recommendations
- Barriers to Implementation

### Goals for the Safe Sleeping Zone

- Keep pillows encased in the special allergen-proof cover.
- Keep mattress and box spring encased in special allergen-proof cover.
- Wash blankets every 2 weeks in hot water.
- Wash bed linen (sheets and pillow cases) in hot water every 2 weeks.
- Remove carpeting and replace with washable area rugs, if possible.
- Vacuum weekly using special HEPA vacuum cleaner.
- If you have forced air, keep filters over vents and replace filters every three months.
- Damp dust all horizontal surfaces (floors, furniture, tops of doors, window frames, sills,) in patient's bedroom weekly.
- Remove dust collectors like upholstered furniture, drapes, and stuffed animals. Pick one favorite animal that is washable.
- Do not use humidifiers
- Special goals

## Checklist for Intervention Activities

### *Discussion Points*

**What can we do to Make the Bedroom a Safe Sleeping Zone?**

- Go to the bedroom or place where the patient sleeps. Be sure you can identify the patient's usual bed; check if there is any other bed where the patient spends more than 2 hours per day or night sleeping or napping.
- Make sure that the caretaker understands that there is nothing wrong with his/her house.
  - "The bedroom is the one room that affects the patient's asthma the most. There are things in everyone's home that make asthma worse."
- Look around the bedroom with the caretaker; identify together what things should be done; remind the caretaker of the patient's skin test results. (Remind the caretaker of the goal: to eliminate or reduce these allergens which, in turn, will reduce patient's symptoms and the problem that asthma causes for the family.)

**As the bedroom concepts are discussed, give the caretaker the Safe Sleeping Zone Handout**

- Go over it together while you circle the goals that are relevant for this family and their home.
  - "When we talk with you again we will see what was easy for you to do and what was hard."
- Remind the caretaker to do as much as they can, and remember that anything they do will be helpful.
- Remind the caretaker that the less dust in the room, the better their patient will feel.

**Be sure the caretaker understands the reasons for the recommendations you are making**

- "Because allergens are often found in mattresses and pillows, the special covers we are giving/recommending for [patient's] mattress and pillows will help prevent him/her from breathing in material that comes from dust."
- "Allergens are also found in sheets and blankets. You should wash [patient's] sheets, blankets, and bedspread in hot water once a week. It is best to have blankets and bedspread that you can wash in a washing machine so that you can wash them every week in hot water. Most people hardly ever wash quilts and comforters that need to be dry cleaned. If this is all you have, you should try to clean them every few weeks or as often as you can."
- If patient has carpet in their bedroom (proceed to next point if no carpet present): "Allergens are often found in rugs. If you can, remove all carpets and rugs from [patient's] bedroom floor. Any rugs that you cannot remove should be vacuumed thoroughly at least once a week."
- Allergens can be found in stuffed animals. Try to have no more than 1 or 2 stuffed animals in [patient's] bedroom, and wash them in hot water and dry them in a dryer once a week."
- "[Patient] should not sleep or lay down on upholstered furniture like sofas because allergens are often found there. When you lay down on furniture that has dust in it, your face is closer to the furniture and you are much more likely to stir up and breathe in the allergy-causing material that comes from the dust. Even sitting on upholstered furniture can cause exposure to dust. You

should use the special filter vacuum cleaner we are giving you to vacuum the upholstered furniture at least once a week.”

- “Dampness and moisture can promote allergens, so you should not use a humidifier. Mold, cockroaches, and dust mites thrive in moist conditions.”
- “Are there any leaks that cause there to be dampness in the home? If there are, these should be fixed because dampness is a good environment for mold, cockroaches, and dust mites.”
- If the bedroom is in the basement or has dampness problems (if not, proceed to next point): “Dampness causes more growth of allergens, so if you can afford it, you should get a dehumidifier and run it in the bedroom when it’s damp or humid. Keeping the air dry will prevent allergens.”
- Consider family report, direct observation, or information from the initial Home Evaluation
- Provide any specific suggestions depending on the situation.
- If warranted, offer to send an advocacy letter to landlord.

### **Specific Remediation Recommendations**

Regardless of a patient’s skin test result and allergen exposure, all patients should have:

- Mattress, box spring, and pillows encasements on the patient’s primary (and secondary) bed(s)
- Floors vacuumed (done with a HEPA vacuum cleaner)
- Upholstered furniture vacuumed
- Bare floors mopped
- Horizontal surfaces cleaned (with a damp cloth)

The following checklist is for all patients, to be reviewed with the caretaker as recommended activities.

#### **Encase the Bed, Mattress, Box Spring, and Pillows**

- “Many things that cause allergy may be found in beds. For this reason, we will give you special covers for [patient’s] bed so that he/she will not be exposed to any allergy-causing materials that may be in the mattress or pillow.
  - Explain why it’s important to cover the entire bed.
  - Have the caretaker feel the material.
  - If patient sleeps on bottom bunk of a bunk-bed, note this and tell caretaker you will bring a mattress cover for the upper bunk at the next visit (if one hasn’t been brought for this purpose already).
  - Be sure caretaker understands the reason: allergens are stirred up in upper mattress and fall onto the patient’s bed and are inhaled by patient, making asthma symptoms worse. Ideally, the patient can also move to the upper bunk bed.
  - Discuss the need for a zippered pillow cover and two pillow cases to make the pillow case stay on over the pillow cover.
  - If the patient needs extra pillows to be comfortable, these must also be covered with the special covers.
- Discuss importance of washing blankets and bed linen in hot water every two weeks.

- Dust mites are present in all bedding, both synthetic and feather, and all need to be enclosed with impermeable covers regardless of material.

***Special considerations: encasing made comfortable***

- If the covers are uncomfortable, tell the caretaker to put an extra sheet on the bed.
- For the pillows, put a zippered or regular cotton pillow case over the special cover and then cover that pillow case with another pillow case.
- For the mattress, a quilted mattress pad can be put over the special mattress cover, then place a cotton sheet over the quilted pad.

***Special considerations: washing the encasement covers and bedding***

- The special covers can be wiped down with a damp cloth or sponge occasionally, but other than that, they can remain in place and don't have to be changed or washed.
- It is important to use blankets and bedspreads that can be washed.
  - With the caretaker, check if the patient's bed has a blanket that can be washed in hot water.
    - If not, see if there is washable blanket in the house that can be traded.
    - If no solution exists, give a washable blanket to caretaker
  - Tell the caretaker to wash blankets frequently (every 2 weeks) in detergent and hot water.
    - This will get rid of any new dust mites, cockroach antigen, or other allergens.
    - Washing in cold water is also helpful but it must be done more often – weekly.
- The bedspread should be washable and washed along with the blanket.
  - If the bedspread on the patient's bed is not washable, see if there is one on another bed that is washable and find out whether they can be traded.
  - If not, see if the caretaker can get a washable bedspread or just use a blanket without a bedspread.
- Ask if the patient ever uses any other coverings on the bed and check to see if these are washable as well.

**Vacuum for the Patient's Bedroom and Key rooms**

- Give the caretaker the HEPA vacuum cleaner and review how to use it.
  - Explain the importance of vacuuming and why the patient should not be present during vacuuming:
    - “Many things that cause allergy are also found in dust. For this reason, it is important that people with asthma keep their homes especially free of dust. Vacuuming, wet mopping, and dusting with a damp cloth should be done more often than in most homes.”
    - “Most vacuum cleaners let many tiny particles of dust past right through the bag and out of the vacuum cleaner. These small particles, which may contain things that cause allergy, then get stirred up into the air and can make asthma worse. For this reason, we are giving you a vacuum cleaner with a special filter that removes almost all of these

tiny particles to keep. We suggest that you vacuum the house/apartment with it at least once or twice a week.”

- “Even when you use a vacuum cleaner with a special filter, housework always stirs some dust into the air. It is best that [patient] not be in the room when you are cleaning.”
- Explain how to use the vacuum; the caregiver should:
  - Use the power head for carpets with pile and attachment for bare floors and throw rugs.
  - Pick up and throw away large pieces of trash or debris before vacuuming.
  - Vacuum one 3-4 foot area at a time, using a back-and-forth motion, until the entire room is vacuumed.
  - Vacuum carpets and rugs in two directions so that the carpet is vacuumed in a “+” pattern upon completion in the key rooms (patient’s bedroom, main play room, and kitchen).
- Recommend vacuuming all upholstered furniture in the *key* rooms, including solid furniture with cushions. The caretaker should:
  - Vacuum upholstered furniture or furniture with cushions from top to bottom.
  - Move wand slowly in a back-and-forth motion.
  - If cushions are removable, remove them, and use the crevice tool to vacuum corners and crevices of the furniture.
  - Turn cushions upside down and place them on furniture to vacuum underside.
  - If cushions are not removable, use the crevice tool to vacuum as much of the corners and crevices between the cushions and backing as possible.
- If the area is wet because of a structural deficit (e.g. leak or flooding) and the patient is sensitized to cockroaches, rodents, fungi, or dust mites, ask the family’s permission to advocate for.

**Recommend a Filter over Forced Air Vent (if forced heating/cooling is used) in the Patient’s Bedroom**

- Discuss with the caretaker why air needs to be filtered; forced air can pump airborne allergens into the room.
- Make sure the caretaker understands that it must be replaced every three months.
- Recommend cutting a filter slightly bigger than the size of the air vent to place behind the air vent cover.

**Recommend Damp Mopping Bare Floors in the Patient’s Bedroom and Key rooms**

- Review with the caretaker how allergens are found in dust and can become airborne when disturbed.
- Review with the caretaker how to damp mop all bare floors in the *key* rooms and the kitchen.
  - Fill a bucket with warm water and the floor cleaning solution.
  - Wet the mop head in bucket and squeeze to remove excess water.

- Mop a 3-4 foot area at a time, rinsing frequently.
- Mop under and around furniture, moving items that can be moved.
- Finish one room before moving to the next.
- Rinse the soap and dirt from the bucket.
- Empty and refill the bucket with the appropriate solution if the water becomes very dark and dirty.

**Recommend Dusting the Patient's Bedroom and Key rooms**

- Note the importance of keeping dust levels low and review dusting techniques.
- Recommend using a damp cloth all horizontal surfaces, including windowsills, bookshelves, and bureaus. Caretaker should:
  - Lift objects on surfaces, if possible, to dust underneath and behind the items
  - Refold the cloth as necessary to clean the surfaces with a clean side of the cloth.
  - Change cloths as necessary.
  - In the kitchen, wipe all of the counter tops using a sponge and all-purpose cleaner or grease cutting solution as necessary.
  - Lift up appliances and other objects to clean under them.
  - Wipe the top of the stove to remove the dust and loose particles.

**Check for Evidence of Smoking in the Home**

- Place "No Smoking" sign; give "No Smoking" sign to the caretaker to be colored by the patient.
- Check for and have caretaker remove, if possible, all ashtrays.

**Check for Evidence of Other Irritants in the Home**

- Strong fragrances coming from things like air freshener, candles, incense, and strong cleaners or chemicals can irritate a patient's asthma or allergies.
- Check for sources of strong fragrances that may irritate the patient and recommend the family avoid using them. At a minimum, limit strong fragrances in the patient's room. If the family has fans that are vented outside (e.g., bathroom fan, kitchen hood) recommend they use the fan to help reduce the irritating odors.

**Special Considerations for the Bedroom: Remove Humidifiers and Vaporizers**

- It is important not to use humidifiers or vaporizers of any kind in the bedroom of a patient with asthma.
  - The increased humidity increases the growth of dust mites and molds that can make the patient worse.
  - In the winter, if the bedroom air becomes dry, the best way to make it comfortable is to keep the bedroom cool.
    - This can be done by turning down the heat or opening a window.

**Special Considerations for the Bedroom: Remove Carpeting (if possible) and Other Dust Collectors**

- Removing rugs from the patient’s bedroom is helpful if the family can do it.
  - All rugs trap dust mites, pet dander, and other allergens, no matter what they are made of, even if the pile is short.
  - If the family can’t remove the carpeting, then they should vacuum frequently (at least once a week) with the HEPA vacuum, when the patient is not in the room.
- Vacuum cleaners blow a lot of dust out the back, which can make the patient’s asthma worse.
  - If the adult or other family member is bothered by the dust, they can wear a disposable mask while vacuuming.
- The family should try to remove everything from the patient’s bedroom that will collect dust, including stuffed furniture, drapes, old books, and stuffed animals.
  - If the patient wants to sleep with a stuffed animal, they should pick one favorite that should be washed every three months to get rid of dust mites and other allergens.
    - If patient is dust mite positive, only, and the family has space in their freezer, the stuffed animal can be placed in a plastic bag in the freezer for 24 hours once a month to kill any dust mites present on the animal.
  - The family should keep the walls and floors as clean and dust-free as possible at all times.
  - Remind them that the cleaner the room, the better the patient will feel.

**Provide any other Handouts the Caretaker is ready for**

- Go over it together while you circle the goals that are relevant for this family and their home.
- “When we talk with you again we will see what was easy for you to do and what was hard.” (Remind the family that this is not an all or none issue; anything they are able to do is helpful).

### **Counseling Patients with a Positive Allergy Skin Test to a Particular Allergen**

**Check for Mold in the Home if Patient is Allergic to Mold**

- Review ways to remove and the importance of removing mold.
  - Note that mold will return (unless reasons for it are eliminated, which may be out of the control of the family). (List under ‘Special goals’, if applicable.)
  - Mold is especially a problem if found in the bedroom since the patient spends prolonged periods of time there.
  - It is important to look for evidence of mold on the walls and other surfaces (plants, humidifiers, etc.).
  - If mold is seen, walls should be washed with 10% Clorox with a sponge and allowed to dry before rinsing.

- **Check for Evidence of Pets living in the Home if Patient is Allergic to Furry Animals**
  - Look for bowls on floor (for food and water).
  - If pets are in home and patient is allergic, give “No Pets” (and “No Dogs”, if appropriate) sign to be colored by patient. (List under ‘Special goals’, if applicable.)
  
- **Provide a HEPA Unit for the Patient’s Sleeping Area if Patient is Allergic to Furry Animals, Mold, or is Exposed to Tobacco Smoke in the Home**
  - Place the HEPA unit in the patient’s bedroom.
  - Turn on the HEPA unit, discuss how it works, and let them see what it sounds like when operating.
    - Ideally it should run 24 hours a day, with the door to the patient’s room closed.
    - At a minimum, it should be used when the patient is in the room at night sleeping.
    - There might be a little increase in the electric bill.
  - If the caretaker expresses concern about the noise of the unit, suggest that he/she turn it on after the patient is asleep, or try a slower fan setting.
  - Make certain to agree with caretaker on how unit will be used.

### **Barriers to Implementation**

Sometimes, the family will identify barriers to implementing the remediation recommendations. Always acknowledge the family’s concerns and work with them to identify solutions that work for them. The table below lists some commonly identified barriers to implementing the Safe Sleeping Zone recommendations and possible solutions.

Common Barriers	Possible Solutions
The washing machines in the building do not work	Find another nearby laundromat. Go to a friend/relative’s place.
It is unsafe to go to the available washing machines.	Go somewhere else or go with someone.
Lack of transportation to the laundromat	Brainstorm individually with family about someone who could take the caretaker.  Carpool to laundromat.  Trade services (example: patient baby-sits while friend/relative does washing).
Only cold water is available in the available machines	Try to wash sheets weekly if there is no access to hot water.
Lack of money for the machines.	Suggest budgeting for laundry or save loose change.
Lack of time for chores such as vacuuming and dusting.	Discuss time management with caretaker. Ask if someone else could help.

Common Barriers	Possible Solutions
Vacuuming and dusting aggravate caregiver's asthma.	This problem should be addressed by providing the HEPA filter vacuum and dusting with a damp cloth. If it is still a problem, try to help the caretaker determine another family member who could help with these chores or suggest wearing a mask.
Patient will not want to get rid of stuffed animals.	Try to convince patient to keep the animals at the end of bed while sleeping. Wash the animals in a mesh bag or pillowcase when washing the sheets or wash in the sink with hot water or put the animal in the freezer overnight once a month. Try to convince the patient to choose only one animal at most to keep on the end of the bed.

## **MODULE 3: CONQUERING COCKROACHES**

To be delivered to patients who are sensitized and exposed to cockroach.

### **Overview**

Even microscopic amounts of material from cockroaches can aggravate asthma, and even a home where cockroaches are not seen can have some cockroaches and a significant amount of allergy-causing material. When a person is allergic to cockroaches, it is important to eliminate any cockroaches that may be in the home and to get rid of dust and dirt that may contain the allergy-causing materials leftover from the cockroaches. Cockroaches need to eat food and drink water. We want to get rid of food and water sources to help them go away.

This module contains:

- Goals for conquering cockroaches
- Checklist for Intervention Activities
  - Discussion Points
  - Remediation Recommendations
- Barriers to Implementation

### **Goals for Conquering Cockroaches**

- Limit eating to kitchen/dining room area.
- Put all opened non-refrigerated food items in sealable bags or plastic containers.
- Clean food crumbs and spills from counters and floors every day.
- Clean crumbs and spills from drawers and shelves in kitchen.
- Clean oven, broiler, and drip pans in stove.
- Clean spills on top of stove and counters daily.
- Vacuum every week with the HEPA vacuum.
- Remove old newspapers and clutter (roach hiding places) daily.
- If you notice cockroach droppings in the bathroom, clean cabinets under bathroom sink.
- Take garbage out or seal daily.
- Repair leaks, dripping faucets.

## Checklist for Intervention Activities

### *Discussion Points*

#### **Discuss How Cockroaches Make Asthma Worse**

- Provide information about the specific relationship of cockroaches to allergy and asthma:
  - “[Patient’s] positive allergy skin test reaction to cockroach means that he/she is probably allergic to cockroaches so it is especially important that we work on getting rid of them.”
  - “Material from cockroaches mixes with dust, and when the dust is disturbed it swirls up in the air and is breathed in.”
  - “Inhaling this roach dust can make asthma worse by causing inflammation and swelling of the airways in people who are allergic to cockroaches.”
  - “Even microscopic amounts of material from cockroaches can make asthma worse; even a home where cockroaches are not seen can have some cockroaches and a lot of their allergy-causing material.”
  - “When a person is allergic to cockroaches, it is important to get rid of dust and dirt that may contain the allergy-causing materials left over from the cockroaches.”

#### **Discuss How the Family can Get Rid of Cockroaches**

- “How bad is your problem with cockroaches in your home? Have you tried to get rid of them? What have you done? How hard has it been?” If they mention effective strategies or report success, congratulate them. “Tell me, what you have been doing?”
- “Before we can get rid of cockroaches, we need to understand some things about their behavior.”
  - “They need to eat food and they find it wherever it is left. Cockroaches eat any food we do, and they also eat many things we do not, like hair and fingernail clippings. Even tiny crumbs or grease around the stove can be a food source for cockroaches.”
  - “They need to drink water so any standing water in the kitchen or bathroom can be a water source for cockroaches. Keep in mind that any leaky faucets and pipes can often lead to standing water.”
  - “Cockroaches can enter the house in a number of ways. They can come in through tiny cracks around doors, windows, pipes, and vents. Sometimes they can even be carried into the home unknowingly on things like newspapers or in grocery bags.”
  - “Cockroaches like to stay hidden in small, dark hiding places.”
- “To get rid of cockroaches, you need to make the home uncomfortable for them. This means getting rid of food and water sources and making it harder for cockroaches to get into the home.”
  - “To get rid of the food cockroaches eat, make sure all open food is stored in plastic bags or containers unless it is in the refrigerator. Remember that cockroaches have no trouble getting into cabinets.”
  - “Fix and seal all leaky faucets and pipes. Make sure there is no standing water anywhere in the house.”

- “Areas where roaches can enter the home need to be blocked, including crevices, windows, woodwork or floor gaps, and cellar and outside doors and drains.”
- “Eliminate cockroaches by setting traps and having a trained exterminator go through the home.”

### ***Specific Remediation Recommendations***

Note: Many of the recommended cockroach remediation activities are the same as for rodent-sensitive patients and are repeated in Module 4: Ridding the Home of Rodents.

#### **□ *Reduce Food Sources and Allergens in the Kitchen and Food-preparation Areas: Cleaning in, on, and around the Stove and Other Appliances***

- Work on the problem together; look for problem spots, especially around stove, cabinets, and counters.
  - In addition to getting rid of cockroaches, it is important to get rid of all of the allergy causing material they may have left behind.
  - Clean any areas where cockroaches have been seen or where there are brown stains left by the cockroaches.
  - Vacuum and mop at least once a week (this should be done by someone other than the patient, if possible).
- Clean the range and drip pans to remove spilled food and grease;
- Clean the top of the stove (removing burners as necessary), oven, broiler, and to clean spills on top of stove daily.
- Use a degreaser solution and scrub the top of the stove with a netted sponge --be careful if using more abrasive sponges/brushes.
- If possible, lift up the stove top to clean under the burner area.
- Clean the interior of the oven and broiler using a mildly abrasive sponge to remove loose food.
- Wipe down the walls around the stove to remove food splatters and residue. Be careful if using abrasive sponges on the walls.
- Vacuum and wash around and under refrigerator and stove, pulling the appliances out from the walls.
- Pull the appliance away from the wall.
  - Vacuum under and around the appliance.
  - Wash floor and adjacent cabinets/walls.
- Use a mild all-purpose solution/detergent to clean interior and exterior of microwave ovens.
- Unplug the toaster/toaster oven, empty crumbs, and wipe down the exterior with sponge and mild solution

□ **Remove Food Sources in Food Storage Areas: Cleaning Shelves and Sealing Food**

- Identify food storage areas and shelves where open dry foods and sticky jars may be stored
- Explain to the caregiver that all shelves should be cleaned in the manner outlined below, encourage them to try, and remind them of why it is important (goal: get rid of food sources for cockroaches as well as eggs and other allergen material from the cockroaches).
- Clean shelves:
  - Empty and clean one shelf at a time working from the highest area to the lowest.
  - Vacuum the shelf to remove loose food and debris.
  - Wash the shelf with a sponge and all-purpose cleaning solution.
  - Wipe plastic, glass, or metal containers that have food residue with sponge and all-purpose cleaning solution.
  - Replace all items before moving to the next shelf, cabinet, or area.
- Seal all open non-refrigerated food items/packages
  - Provide sealable plastic bags for family to store items in other cabinets (reemphasize goal: remove food sources).
  - If family has suggestions for sealing or storing food that are as effective, acknowledge them and use them.
  - Place items in appropriate size sealable bag.
  - Clean opened sealable containers that have food residue with sponge and all-purpose cleaning solution.

□ **Reduce Food Sources and Allergens in the Food Preparation Areas**

- Vacuum, mop, and wipe horizontal surfaces (e.g., floor, shelves, countertop) where food is stored, prepared, and consumed (e.g., kitchen and dining room) to find and remove cockroach food sources.
  - Wipe counters with a damp sponge.
  - Clean under and around appliances and items on the counters.
  - Wipe down items on the counters that have food residue, grease, or that appear dusty.

□ **Reduce Food Sources and Allergens in Food Disposal/Recycling Areas**

- Empty trash can
  - Take garbage out or seal daily
  - Remove any liners or plastic bags.
  - Wash trash can with detergent, gently using scrub brushes or pads as needed, removing all food stains and spills from the bottom inside and outside and sides
  - Dry and insert a new liner
  - Thoroughly vacuum and wash around the area where the trash or recycling crate is stored

□ **Place Containers Under Leaks that can be Captured and Emptied Regularly, Until the Leak is Fixed**

- Don't leave any water standing in open containers
- Fix and seal all leaky faucets and pipes that may be providing water for cockroaches.
  - If there is a presence of significant structural deficits (e.g. large holes, leaks) discuss with the family what they can do to arrange repairs (if the home is rented, recommend they contact the owner or landlord to request repairs).

□ **Making Key Rooms less Inviting to Cockroaches**

- Note: Key rooms include the patient's primary bedroom, the patient's main play area, and the kitchen
- Eliminate cockroach stains and droppings; encourage caretaker to look in bathroom cabinets for stains.
  - Use a mild detergent and sponge to clean stains and droppings from surfaces throughout the house.
- Dispose of old newspapers, clutter, and garbage
- Look for standing water
  - Plan for repairs and/or removal
  - If appropriate, help the family contact the landlord with an advocacy letter requesting necessary repairs
  - Collect water with a pot or bucket if possible until problem can be permanently resolved.
- Eliminate for crumbs and food on counters, furniture, and floor
- Explain importance of not eating outside of the kitchen or dining area
  - Vacuum and dust rooms where patient spends time, including the bedroom.
- Look for holes in walls ¼ inch or bigger (the size of an eraser on the end of a pencil) wallboard
  - Have a trained exterminator assess the home and seal any hole/openings.
  - If there are large holes or leaks, contact the landlord to advocate for repairs.

### **Barriers to Implementation**

Sometimes, the family will identify barriers to implementing the remediation recommendations. Always acknowledge the family's concerns and work with them to identify solutions that work for them. The table below lists some commonly identified barriers to implementing the Conquering Cockroaches recommendations and possible solutions.

Common Barriers	Possible Solutions
Caregiver is unable to move the refrigerator or the stove to clean around and behind them.	Brainstorm with caretaker about someone to help.
The problem is too overwhelming. They are everywhere.	Begin small and add more goals with each visit. Emphasize that calling an exterminator will help but caretaker must help too.
Caregiver is following suggestions, but they aren't going away. There is no extra food or water out for them.	Look for hiding places and remove extra clutter. Look for entry points.
Caregiver is unable to remember to put the pet food up at night.	Put reminder notice up in a place it will be seen in the evening. Encourage it to become a habit by associating it with another evening activity such as doing dinner dishes.
The dumpster is too far away to use often.	Brainstorm for someone else to help take the trash. Brainstorm for a time when he/she passes the dumpster and then encourage caretaker to always take it at that time. Close it up at night if unable to take it to dumpster.
Caregiver unable to put the pet food up at night because the pet eats at night.	Retrain the pet's eating schedule.

## MODULE 4: RIDDING THE HOME OF RODENTS

To be delivered to patients who are sensitized and exposed to mouse or rat.

### Overview

Rodent allergen comes from proteins found in their skin, saliva, and urine. The air in the home where there are mice or rats may have these allergy-causing particles. When a person is allergic to mice or rats, it is important to eliminate any rodents that may be in the home and to get rid of dust and dirt that may contain the allergy-causing materials leftover from the rodents. Mice and rats need to eat food and drink water. We want to get rid of food and water sources to help them go away.

Note: several of the activities overlap with the cockroach module and can be combined if the patient is sensitive to both cockroach and rodent. In the rare case that you encounter a family in which the patient is allergic to rodents and has no rodent pests but has a pet guinea pig, hamster, rat or mouse, follow the steps in the Module 5: Furry Friends.

This module contains:

- Goals for ridding the home of rodents
- Checklist for Intervention Activities
  - Discussion Points
  - Remediation Recommendations
- Barriers to Implementation

### Goals for Ridding the Home of Rodents

- Keep HEPA unit running in patient's bedroom.
- Keep mattress covers on patient's bed.
- Vacuum with special HEPA vacuum cleaner weekly.
- Limit eating to kitchen/dining room area.
- Put all opened non-refrigerated food items in sealable bags or plastic containers.
- Clean food crumbs and spills from counters and floors every day.
- Clean oven, broiler, and drip pans in stove.
- Clean spills on top of stove and counters daily.
- Mop all wood or linoleum floors weekly.
- Damp dust all horizontal surfaces.
- Contact building owner about rodent problem.

## Checklist for Intervention Activities

### Discussion Points

#### **Discuss How Rodents Make Asthma Worse**

- Provide information about the specific relationship of rodents to allergy and asthma:
  - “The patient’s positive allergy skin test reaction to [mouse/rat] means that he/she is probably allergic to [mice/rats].”
  - “Materials from the saliva and dried urine of mice and rats can enter the air and stay there. The air that is in the home of where there are mice and rats may have these allergy-causing particles.”
  - “Allergy-causing material from mice or rats also mixes with dust and may be stirred up and breathed in like other materials found in dust.”
  - “Inhaling the air or dust with these materials can make asthma worse by causing inflammation and swelling of the airways in people who are allergic to mice or rats.”
  - “Even microscopic amounts of material from rodents can make asthma worse. Even if you don’t see them in your home, you can have some mice or rats and a lot of their allergy-causing materials.”

#### **Discuss How the Family can Get Rid of Rodents**

- “How bad is your problem with mice and rats in your home? Have you tried to get rid of them? What have you done? How hard has it been?” If they mention effective strategies or report success, congratulate them. “Tell me, what have you been doing?”
- Before we can get rid of mice or rats, we need to understand some things about their behavior.
  - “[Mice/rats] eat any food we do and they find it wherever it is left. Rodents eat any food we do. Even tiny crumbs or grease around the stove can be a food source for rodents.”
  - “They need to drink water so any standing water in the kitchen or bathroom can be a water source for rodents. Keep in mind that any leaky faucets and pipes can often lead to standing water.”
  - “Mice and rats can enter the house in a number of ways. They can come in through tiny cracks around doors, windows, pipes, and vents.”
- “To get rid of mice or rats, you need to make your home uncomfortable for them. This means getting rid of food and water sources and making it harder for rodents to get into the home.”
  - “To get rid of their food, you need to make sure all of your food is stored in containers or plastic bags unless it’s in the refrigerator. Remember that [Mice/rats] have no problem getting into cabinets.”
  - “Avoid eating outside the kitchen or dining area.”
  - “You need to vacuum or damp mop your kitchen floor, and any other rooms where you eat, every day. Even tiny crumbs you don’t notice are enough to be food for [mice/rats]. The entire home should be vacuumed once a week with a HEPA vacuum.”

- “Fix and seal all leaky faucets and pipes. Make sure there is no standing water anywhere in the house.”
- “Areas where rodents can enter the home need to be blocked, including crevices, windows, woodwork or floor gaps, and cellar and outside doors and drains.”
- “Eliminate rodents by setting [mouse/rat] traps. These should be placed against the wall in spots where droppings have been seen.”

### ***Specific Remediation Recommendations***

\* Note: Asterisked activities were also included in Module 3: Conquering Cockroaches. If Module 3 has been performed, follow up with the caregiver on these activities in this Module. Inquire as to ongoing implementation, challenges, and steps to take to overcome any issues.

#### ***\*Reduce Food Sources and Allergens in the Kitchen and Food-preparation Areas: Cleaning in, on, and around the Stove and Other Appliances***

- Clean the range and drip pans to remove spilled food and grease.
- Clean the top of the stove (removing burners as necessary), oven, broiler, and clean spills on top of stove daily.
- Use a degreaser solution and scrub the top of the stove with a netted sponge --be careful if using more abrasive sponges/brushes.
- If possible, lift up the stove top to clean under the burner area.
- Clean the interior of the oven and broiler using a mildly abrasive sponge to remove loose food.
- Wipe down the walls around the stove to remove food splatters and residue. Be careful if using abrasive sponges on the walls.
- Vacuum and wash around and under refrigerator and stove, pulling the appliances out from the walls
- Pull the appliance away from the wall.
  - Vacuum under and around the appliance.
  - Wash floor and adjacent cabinets/walls.
- Use a mild all-purpose solution/detergent to clean interior and exterior of microwave ovens
- Unplug the toaster/toaster oven, empty crumbs and wipe down the exterior with sponge and mild solution

#### ***\*Remove Food Sources in Food Storage Areas: Cleaning Shelves and Sealing Food***

- Identify food storage areas and shelves where open dry foods and sticky jars may be kept
- Explain to the caregiver that all shelves should be cleaned in the manner outlined below, encourage them to try, and remind them of why it is important (goal: get rid of food sources for rodents as well as other allergen material from rodents)
- Clean shelves:
  - Empty and clean one shelf at a time working from the highest area to the lowest.

- Vacuum the shelf to remove loose food and debris.
- Wash the shelf with a sponge and all-purpose cleaning solution.
- Wipe plastic, glass, or metal containers that have food residue with sponge and all-purpose cleaning solution.
- Replace all items before moving to the next shelf, cabinet, or area.
- Seal all open non-refrigerated food items/packages
  - Provide sealable plastic bags for family to store items in other cabinets (reemphasize goal: remove food sources).
  - If family has suggestions for sealing or storing food that are as effective, acknowledge them and use them.
  - Place items in appropriate size sealable bag.
  - Clean opened sealable containers that have food residue with sponge and all-purpose cleaning solution.

**\*Reduce Food Sources and Allergens in the Food Preparation Areas**

- Vacuum, mop, and wipe horizontal surfaces (e.g., floor, shelves, countertop) where food is stored, prepared, and consumed (e.g., kitchen and dining room) to find and remove rodent food sources.
  - Wipe counters with a damp sponge.
  - Clean under and around appliances and items on the counters.
  - Wipe down items on the counters that have food residue.

**\*Reduce Food Sources and Allergens in Food Disposal/Recycling Areas**

- Empty trash can
  - Take garbage out or seal daily
  - Remove any liners or plastic bags.
  - Wash trash can with detergent, gently using scrub brushes or pads as needed, removing all food stains and spills from the bottom inside and outside and sides
  - Dry and insert a new liner
  - Thoroughly vacuum and wash around the area where the trash or recycling crate is stored

**\*Make Key Rooms less Inviting to Rodents**

- Note: Key rooms include the patient's primary bedroom, the patient's main play area, and the kitchen
- Eliminate rodent droppings
  - Use a mild detergent and sponge to clean droppings from surfaces throughout the house.
- Dispose of old newspapers, clutter, and garbage
- Eliminate crumbs and food on counters, furniture, and floor

- Vacuum and dust rooms where patient spends time, including the bedroom.
- Look for holes in walls ¼ inch or bigger (the size of an eraser on the end of a pencil) wallboard
  - If patient is not cockroach sensitive, put non rusting metal (e.g., copper mesh/Stuff-It/100% copper scrubbing pads) in the holes so that rodents cannot chew threw the seal.
  - If the patient is cockroach sensitive, contact an exterminator as outlined in Module 3, Conquering Cockroaches.
  - If there are large holes or leaks, contact the landlord to advocate for repairs.

**Set up Rodent Traps**

- Place rodent traps along runways, near known entry points, and close to walls in areas where rodent droppings are present.
  - Check the traps daily to see if any [mice/rats] have been caught. If any are caught, first make sure the rodent is dead. Then use a plastic bag to avoid touching the rodent, and place the trap and dead animal in another plastic bag. Throw the entire thing in the trash.
  - Leave some extras traps for the caregiver to use, if necessary

**Safe Sleeping Zone from Rodents: Filtering the Air in the Bedroom**

- Place a HEPA air filter unit in the patient’s bedroom and run it 24 hours/day if possible.
- Damp dust all horizontal surfaces.
- Keep mattress covers on patient’s bed (performed in Module 2, Safe Sleeping Zone)

**Barriers to Implementation**

Sometimes, the family will identify barriers to implementing the remediation recommendations. Always acknowledge the family’s concerns and work with them to identify solutions that work for them. The table below lists some commonly identified barriers to implementing the Ridding the Home of Rodents recommendations and possible solutions.

Common Barriers	Possible Solutions
Caregiver is unable to move the refrigerator or the stove to clean around and behind them.	Brainstorm with caretaker about someone to help.
The problem is too overwhelming. They are everywhere.	Begin small and add more goals with each visit.
Caregiver is following suggestions, but they aren’t going away. There is no extra food or water out for them.	Look for hiding places and remove extra clutter. Look for entry points.
Caregiver is unable to remember to put the pet food up at night.	Put reminder notice up in a place it will be seen in the evening. Encourage it to become a habit by associating it with another evening activity such as doing dinner dishes.

Common Barriers	Possible Solutions
The dumpster is too far away to use often.	Brainstorm for someone else to help take the trash. Brainstorm for a time when he/she passes the dumpster and then encourage caretaker to always take it at that time. Close it up at night if unable to take it to dumpster.
Caregiver unable to put the pet food up at night because the pet eats at night.	Retrain the pet's eating schedule.

## MODULE 5: DEALING WITH FURRY FRIENDS

To be delivered to patients who are sensitized and exposed to dog or cat (or rat or mouse, if patient has a furry pet like a guinea pig, hamster or mouse).

Note: if the patient is only sensitive, and not exposed, encourage patient to wash hands after playing with friend or neighbor's pet and to keep face away from fur. If friends, babysitters, or relatives have furry pets, discuss with them the importance of reducing the time the patient plays with the pet and the need for the patient to wash his/her hands after petting the animal. Remind caregiver that [patient] has been found to be allergic to [type of pet] so it is important to plan ahead for how to deal with exposure to pets in other people's homes and in the neighborhood

### Overview

The allergens of most furry animals come from the skin (dander), the saliva, and the urine (the hair of an animal does not cause allergic symptoms, even though many people believe this). The air in the room where a furry animal lives may have these allergy-causing particles. When a person is allergic to furry animals, the only real effective way to deal with pet allergen is to remove the animal from the home. Keeping the animal outdoors is only a partial solution. If finding a new home for the animal is not an option, we need to find other ways to limit exposure to the allergens.

This module contains:

- Goals for dealing with furry friends
- Checklist for Intervention Activities
  - Discussion Points
  - Remediation Recommendations
- Barriers to Implementation

### Goals for Dealing with Furry Friends

- Find new home for pet.
- Keep pet out of patient's bedroom.
- Keep patient's bedroom door shut.
- Encourage patient to wash hands after playing with pet and to keep face away from fur.
- Keep HEPA unit on in patient's room.
- Keep mattress covers on.
- Wash your pet every 2 weeks.
- Wash bed linens at least every other week.
- Vacuum with special vacuum cleaner and bags weekly.
- Encourage patient to wash hands after playing with friend or neighbor's pet and to keep face away from fur.

## Checklist for Intervention Activities

### Discussion Points

#### **Discuss How Furry Pets Make Asthma Worse**

- Provide information about the specific relationship of rodents to allergy and asthma:
  - “[Patient’s] positive allergy skin test reaction to [pet] means that (he/she) is probably allergic to [pet], even if you have never noticed a problem. “
  - “It is not the pet hair, but dander, skin particles and saliva, of furry pets and, in some cases, the protein in their urine that makes asthma worse.”
  - “These particles enter the air and stay there.”
  - “When these microscopic particles are inhaled they can cause inflammation and swelling in the breathing tubes and aggravate asthma.”
  - “You do not have to touch the [pet]; just being in a room where a [cat/dog] spend time is enough to aggravate asthma.”
- “Cats are the worst in general; cat allergen is sticky and can stay around for months even after the cat has permanently left the home.”
- At first, getting rid of a pet may not be possible. But, if reducing patient’s exposure is not effective, revisit the possibility of removing pet, especially as parent sees relationship between patient breathing in allergens and his/her asthma symptoms.

#### **Discuss How the Family Can Eliminate Allergens or Reduce Patient’s Exposure**

- Discuss how the only really effective way to deal with pet allergen is to remove the animal from the home
  - Discuss the removal of furry pets, alternative pets (i.e., non-furry ones like a turtle, hermit crab, or fish), and the possibility of providing a home for the pet with a relative or friend that patient knows will take good care of the pet (but not a home where patient spends a lot of time).
  - Keeping the animal outdoors is only a partial solution, since studies have shown that homes with pets kept in the yard have higher concentrations of animal allergens than homes without pets.
  - There are methods of reducing pet allergen if removal of the pet from the home is not possible at this time, though this will not eliminate the pet allergen.
  - If the family has a pet for protection or because they have other infestations and the pet helps control it (e.g., a cat for mice or rats), it may be possible to suggest other solutions to the problem for which the family has the pet (e.g., mouse or rat traps).
- If the family is unwilling or unable to find another home for the pet it should be kept out of the patient’s sleeping area at all times
  - Any visit by a furry pet will leave allergen behind.
  - HEPA home air cleaners are designed to reduce airborne allergens in the indoor environments and help to eliminate some of the pet dander and other allergens in the

home. To be effective, it should be kept running the patient's sleeping area for 24 hours a day.

- Reduce exposure to pet allergens already present in the home by keeping covers on mattresses, pillows, box springs, and cushions to prevent the release of pet allergen when squeezed.
- Pet allergen accumulates in these places and remains there even when the pet is no longer present in the room.
- Vacuuming helps with allergy problems, especially when HEPA filters are used in the vacuum.
  - The best solution is to have hardwood or linoleum floors with scatter rugs that can be taken up and washed.
- Bed linen should be washed at least every other week to reduce allergen levels.
- Patient should not sleep or lay down on upholstered furniture like sofas because allergy-causing material from pets is often found there. When you lay down on furniture, your face is closer to the furniture and you are much more likely to stir up and breathe in the allergy-causing material that comes from the [animal]. Even sitting on upholstered furniture can cause exposure to this material.

□ **Specific Instructions for Dealing with Unique Pets**

- Some families may have less common pets such as guinea pigs, hamsters, rabbits, mice, or birds. If the family you are counseling has these pets or the patient is exposed to these pets (at home or elsewhere), cover these discussion points.
- Control of asthma from guinea pigs, hamsters, and rabbits is similar to that of cats and dogs
  - It is best not to have furry pets in the home at all; suggest that the family find a new home for the pet with a neighbor, friend, or other family member
  - If the family is unwilling to find a new home for the pet, it should not live in the room where the patient sleeps, and it should remain in the cage at all times
  - The patient should not change the litter or clean the cage
  - If the patient pets or plays with the animal, he/she should wash his/her hands afterwards
  - All rugs should be vacuumed weekly and floors damp mopped weekly
- Pet birds can cause similar problems as furry pets
  - Allergenic material is present in bird feathers, down, and droppings
  - Certain types of birds, such as cockatoos, give off a highly allergenic, fine powder whenever they flap their wings, and can cause particularly severe breathing problems
  - Bird droppings contain very potent allergens. When the droppings dry, they form a very fine dust that blows around the room and can cause respiratory disease
  - Because bird allergens are present in the form of dust, birds can cause respiratory problems even when there are no visible feathers in the home
- In general, it is unhealthy to have more than 1-2 small birds (canaries or parakeets) in the home, and it is always unhealthy to have any bird fly around inside the home.

### ***Specific Remediation Recommendations***

\* Note: Asterisked activities pertain to specific pets the family may or may not have. These modules should only be covered if the family has these pets, is planning to get one of these pets, or if the patient is exposed to these pets somewhere else (e.g., at family member's house or at school).

#### **Eliminate or Reduce Exposure to Pet Allergen**

- Look for areas (especially in patient's bedroom) with evidence of pet hair.
  - Cover areas where pet sleeps with a blanket or towel and wash the cover weekly.
  - Vacuum all rooms and upholstered furniture to which pet has access at least once a week.
  - Concentrate on areas where patient spends the most time.
- Keep the [cat/dog] out of [patient's] bedroom at all times. You will need to keep [patient's] door closed at all times to do this.
- Have [patient] wash hands after petting or playing with the animal.
- Bathe the pet every 2 weeks; check with vet for instructions. This will prevent the build-up of allergy causing material on the [animal's] fur

#### **Install a HEPA Unit if Pets/Animals Remain in the Patient's Home**

- Place a HEPA unit in the patient's bedroom
  - Leave the unit running in [patient's] room whenever the windows are closed. This will filter out of the air some of the allergy-causing material from the [animal] so that [patient] does not breathe it in while [he/she] is in the bedroom.
  - Ideally it should run 24 hours/day. If 24 hours//day is not possible, it should be run at a minimum from one hour before the patient gets home and as long as the patient is in the room
- Plan ahead for how to deal with exposure to pets in other people's homes and in the neighborhood.

#### **\*Eliminate or Reduce Exposure to Pet Rodent Allergens**

- In the rare case that you encounter a family in which the patient is allergic to rodents and has no rodent pests but has a pet guinea pig, hamster, rat, or mouse, the following activities and goals should be suggested and reviewed with the caretaker:
  - If the patient pets or plays with the animal, he/she should wash his/her hands afterwards.
  - The patient should not change the litter or clean the cage.
  - All rugs should be vacuumed weekly.
  - The floors should be damp mopped weekly.

#### **\*Eliminate or Reduce Exposure to Pet Birds**

- Measures to control bird-derived allergens are similar to that of other pets
  - Remove birds from the home if possible

- If removal is not possible, they should never be in the sleeping environment of the patient with asthma
- The patient should never clean the cage or change the bedding
- Only a few small birds should be in a home under any circumstances
- No birds should ever be allowed to fly free within the home

## Barriers to Implementation

Sometimes, the family will identify barriers to implementing the remediation recommendations. Always acknowledge the family's concerns and work with them to identify solutions that work for them. The table below lists some commonly identified barriers to implementing the Dealing with Furry Friends recommendations and possible solutions.

Common Barriers	Possible Solutions
The HEPA filter is too loud to use.	Caretaker can turn it off while patient is falling asleep and then turn it back on once patient falls asleep.
Family does not want to get rid of the pet	Do not push this issue if the patient does not want to make the change. Move on to discussion about how to help keep the patient away from the pet.
Caregiver is unable to keep the pet out of the patient's bedroom because the pet always sleeps there	Keep door shut. The pet can adjust to a new sleeping place
Caregiver unable to keep the pet away from where the patient sleeps because he/she does not have a bedroom (or the bedroom does not have a door).	Put bed up during day if possible. Keep the animal in another room. Create a barrier to keep the animal out of the room where patient sleeps. At night, put a plastic cover on the couch (or whatever the patient sleeps on). Try to work with the family to find a more protected sleeping space for the patient.
Others in the family let the pet into the patient's bedroom.	Put reminder sign to keep pets out on patient's bedroom door.
The patient cannot remember to wash his/her hands after playing with the pet.	The caretaker should be a role model for the patient.
Lack of time for chores such as vacuuming and dusting.	Discuss time management with caretaker. Ask if someone else could help.
Vacuuming and dusting aggravate caregiver's asthma.	This problem should be addressed by providing the HEPA filter vacuum and dusting with a damp cloth. If it is still a problem, try to help the caretaker determine another family member who could help with these chores or suggest wearing a mask.

## MODULE 6: MOLD-PROOFING YOUR HOME

To be delivered to patients who are sensitized to mold.

### Overview

Mold is also sometimes called mildew or fungus. Every home has at least some mold growing in it, especially in the bathroom because mold grows best where it is humid. As mold grows, it releases spores (seeds). These are so small that you cannot see them without a microscope. These allergens can become airborne naturally. When people who are allergic to mold and have asthma breathe in these fungal allergens, it makes their asthma worse and can cause asthma attacks. We want to limit moisture in the home and get rid of existing mold and mildew.

Molds like to live where it is warm, humid, and dark. To get rid of molds, try to eliminate the conditions that they like. Ventilating rooms and closets and lighting them helps to keep them dry and reduces mold.

This module contains:

- Goals for mold-proofing your home
- Checklist for Intervention Activities
  - Discussion Points
  - Remediation Recommendations
- Barriers to Implementation

### Goals for Mold-Proofing Your Home

- Make sure that the HEPA unit is running.
- Hang up wet towels and laundry to dry.
- Use the air conditioner in warm weather.
- Avoid having the patient go into the basement.
- Avoid having the patient play in the laundry room.
- Identify other rooms with a musty smell; have the patient avoid these areas.
- Dry all mops and rags before storing.
- Use a fan or open a door or window to ventilate the bathroom during showers and baths.
- Rinse mildewed shower curtain and other bathroom areas with 10% bleach solution once a week.
- Clean the kitchen with 10% Bleach solution once a week.
- Throw out excess newspapers, books, and magazines.
- Limit the number of plants, especially in the patient's bedroom.
- Vent the clothes dryer to the outside.
- Open a window if clothes are hung up to dry indoors.

## Checklist for Intervention Activities

### *Discussion Points*

#### **Discuss What Mold is and How Mold can Make Asthma Worse**

- Provide information about the specific relationship of mold to allergy and asthma.
  - “[Patient’s] positive allergy skin test to mold (which is also sometimes called mildew or fungus) means that he/she is probably allergic to mold.”
  - “Every home has at least some mold growing in it, especially in the bathroom because mold grows best where it is humid.”
  - “As mold grows, it releases spores into the air that are so small you cannot see them without a microscope. When people with asthma breathe in these spores, it makes their asthma worse and can cause asthma attacks.”
  - “People allergic to molds may have symptoms from spring to late fall (the mold season often peaks from July to late summer). “
  - “In the warmest areas of the United States molds thrive all year and can cause year-round allergy problems. “
  - “If there is a lot of mold in a person’s home, symptoms can be made present or even worse when the person is exposed to the mold, regardless of the season of the year.”

#### **Discuss Typical Signs and Locations of Mold in the Home**

- Ask about and discuss any specific areas of dampness in the home or mold growth that has been detected by the family or environmental staff.
  - “Mold can grow in the shower or on a shower curtain”
  - “Mold can grow in a machine that has water in it, like a humidifier.”
  - “Mold can grow around leaking pipes or windows or roofs, or around pipes or windows with condensation on them even if they are not leaking.”
  - “Mold can grow in a rug that has been flooded or even just damp.”
- If there are carpets in the home:
  - “When mold is growing in a carpet that has become damp, it is difficult and sometimes impossible to get all of the mold out of the carpet.”
  - “It would be best to have no carpets except for small rugs that you can clean and dry. “
  - “Discuss the possibility of removing carpets; alternative floor coverings; need for landlord involvement.”

#### **Discuss How the Family can Get Rid of Mold**

- “When you see mold growing on surfaces like walls or around windows, it is important to wash it with a solution of bleach and water because this kills the mold.”
  - “We recommend 1 part bleach to 9 parts water.”

- “Bleach fumes can make asthma worse, so it is very important that you keep [patient] and any of your other patients who have asthma out of the room where you are cleaning with bleach solution.”
  - “Open the windows in the room when you are using bleach solution, and air it out very well when you are done.”
  - “Do not let [patient] go into the room until the bleach smell is gone.”

***Specific Remediation Recommendations***

**Get Rid of Mold in the Patient’s Bedroom**

- Check for sources of moisture and mold in room.
  - Check if windows are dripping from humidity.
  - Check for dampness, stains, and musty odors.
  - Remove house plants, as mold can grow on the surface of clay pots, dead leaves, and in the soil
  - Measure humidity and temperature in patient’s bedroom.
- Check if there is an AC unit present in room.
  - If yes, encourage the caretaker to use it in warm weather, and demonstrate how to change or clean the filter.
- Place a HEPA unit in the patient’s bedroom
  - Leave the unit running in [patient’s] room whenever the windows are closed. This will filter out of the air some of the allergy-causing material from the [animal] so that [patient] does not breathe it in while [he/she] is in the bedroom.
  - Ideally it should run 24 hours/day. If 24 hours//day is not possible, it should be run at a minimum from one hour before the patient gets home and as long as the patient is in the room

**Get Rid of Mold in the Bathroom that the Patient Uses Most Often**

- Check if there are wet towels and/or laundry on the floor.
  - Pick up and hang so can dry if possible
  - Suggest opening a window if clothes are hung up to dry indoors
- Check for mildew on the shower curtain, the walls, window sills, tile grout, and the ceiling
  - Clean mold and mildew, and show caretaker how to make 10% bleach solution (1 part bleach, 9 parts water) and how to clean
  - Leave door or window slightly ajar during shower if possible, but especially afterwards.
  - If bathroom has a fan, leave it on during and for 30-45 minutes after taking a shower or bath

**Get Rid of Mold in Key Rooms**

Note: Key rooms include the patient’s primary bedroom, the patient’s main play area, and the kitchen

- Remove
  - Piles of old newspapers
  - Old books or papers
  - Wet mops
  - Plants
- Have the patient avoid rooms with a musty smell
- If mold or a musty smell is noticed in the kitchen, clean the kitchen with 10% bleach solution once a week.
- Check the refrigerator for mold
  - Clean mold on and inside the refrigerator. Mold grows on the gasket around the inside of the refrigerator door. Mold may be found on stored food; throw it away since the mold has penetrated the food (except cheese, which the mold can be cut from).
  - Check the water pan once a month for self-defrosting refrigerators. If there is any water in the pan, throw it out and clean the pan with a 10% bleach solution
- Look for standing water
  - Plan for repairs and/or removal
  - If appropriate, help the family contact the landlord with an advocacy letter requesting necessary repairs
  - Collect water with a pot or bucket if possible until problem can be permanently resolved.
- If family lives in a dwelling with regular access to basement:
  - Avoid having patient go into the basement unless family lives in the basement.
  - If patient must have regular access to basement, follow steps for reducing mold.
  - To reduce dampness, run a dehumidifier and empty the water daily; to avoid mold growth in the tank or bucket where the water collects, clean the reservoir weekly with 10% bleach solution.
- If family lives in a dwelling with regular access to a laundry room:
  - Avoid having patient play in the laundry room.
  - Vent the clothes dryer to the outside.
- If any walls are mildewed, advise the caregiver not to paint over them. The mildew will grow through the new paint. Instead, use a sponge to wash the wall with 10% bleach solution. Let the mixture dry on the wall for 20 minutes, then rinse it off thoroughly with fresh water. Let the wall dry overnight before painting.
- Damp closets can be helped by installing a fan, installing louvered doors, keeping the closet door and a window open in the room, or using a small dehumidifier.

## Barriers to Implementation

Sometimes, the family will identify barriers to implementing the remediation recommendations. Always acknowledge the family's concerns and work with them to identify solutions that work for them. The table below lists some commonly identified barriers to implementing the Mold-Proofing Your Home recommendations and possible solutions.

Common Barriers	Possible Solutions
The cleaners are too irritating.	Make sure bleach is diluted properly. Wear a mask.
Caregiver unable to get the rest of family to cooperate in the bathroom (e.g. keeping the bathroom door open after a shower to eliminate moisture).	Encourage them that it is for well-being of patient. Make reminder sign to keep door open.

## MODULE 7: REDUCING EXPOSURE TO TOBACCO SMOKE

To be delivered to patients who are exposed to tobacco smoke.

Note: if the patient is not exposed to tobacco smoke, still provide the “Reduce Patient’s Exposure to Environmental Tobacco Smoke from sources Outside of the Patient’s Home” information on the last page of this document.

### Overview

While Environmental Tobacco Smoke (ETS) is not considered an allergen, smoke particles irritate the airways. Second-hand smoke is what we call the smoke that people breathe in when they do not smoke themselves but when other people in the same room or building smoke. When people with asthma breathe in second-hand smoke, it makes their asthma worse and can cause respiratory infections. Second-hand smoke travels from room to room, and even when you cannot see any smoke, the chemicals from the smoke are in the air and can make asthma worse.

This module contains:

- Goals for reducing exposure to tobacco smoke
- Checklist for Intervention Activities
  - Discussion Points
  - Remediation Recommendations
- Barriers to Implementation

### Goals for Reducing Exposure to Tobacco Smoke

- Do not smoke around your patient, in your patient’s bedroom, or in the car with your patient.
- Keep HEPA unit running in the patient’s bedroom.
- Keep the door to the patient’s bedroom closed.
- Ask family members to smoke outside.
- Ask family members to smoke in a room where patient does not usually spend time.
- Try to increase the ventilation in the house by opening windows or running a fan.
- Don’t sit in smoking sections of public places.
- Encourage guests not to smoke in your house.
- Display the “No Smoking” sign.
- Check on smoking in homes or places that your patient spends a lot of time; talk with these people about how smoking is bad for asthma.
- Enroll in a program to stop smoking.

## Checklist for Intervention Activities

### Discussion Points

- Discuss How Exposure to Environmental Tobacco Smoke Makes Asthma Worse**
  - Provide information about the specific relationship of tobacco smoke to asthma
    - “Smoke bothers the lungs of all patients with asthma.”
    - “Second hand smoke is what we call the smoke that people breathe in when they do not smoke themselves but other people smoke in the same room or building.”
    - “When patients breathe in second-hand smoke because people smoke in their homes, it makes their asthma worse and can cause respiratory infections.”
    - “Second-hand smoke travels from room to room, and even when you cannot see any smoke, the chemicals from the smoke are in the air and can make asthma worse.”
  
- Discuss What can be Done to Reduce Exposure to Environmental Tobacco Smoke at Home**
  - “How have you tried to reduce [patient]’s exposure to smoke?” Congratulate them and discuss what, how, how long they were successful, barriers, etc.
  - Encouragement and motivation is critical to this module
    - Smoking is an activity that is highly addictive and highly habitual
    - Changing smoking behavior is incredibly difficult
    - Convey empathy to the smoker and the patient’s caregiver, and communicate an understanding of the difficulty of the task
  - Determine who smokes in the household, how often, and where
  - Assess if those that smoke in the family have tried to quit
    - “Have you/others ever tried to stop smoking? ”
    - “How hard has it been? ”
    - If anyone has been successful, congratulate them
  - Establish goals with the family based on their readiness to change their smoking behavior
    - The goal is to reduce, as much as possible, the patient’s exposure to tobacco smoke, specifically in the home, but work with the families to develop strategies to reduce exposure when the patient goes out as well.
    - “The best way to make sure that the patient is not exposed to any of this smoke is to make sure that no one smokes anywhere in the home.”
    - “When you/family member smoke, it would be best if you smoke only outside the home; do you think this is possible?”
    - Small goals are important, such as slowly integrating certain smoking behavior changes
    - If the caregiver/family member seems unable to change his/her behavior and smoke outside all the time, instead of setting the goal of smoking outside all the time immediately, suggest that the caregiver begin by trying to smoke his/her morning cigarettes outside

- “Pick a single room in the house where [patient] does not spend time and make that the only room where smoking is allowed, while keeping the windows open and using a fan to blow the smoke out of the home.”
- If caregiver or other family members seem ready to try to quit, give them the list of smoking cessation programs in the area.

### ***Specific Remediation Recommendations***

#### **Reduce Tobacco Smoke in the Patient’s Bedroom**

- Place a HEPA unit in the patient’s bedroom
  - Leave the unit running in [patient’s] room whenever the windows are closed. This will filter out of the air some of the allergy-causing material from the [animal] so that [patient] does not breathe it in while [he/she] is in the bedroom.
  - Ideally it should run 24 hours/day. If 24 hours/day is not possible, it should be run at a minimum from one hour before the patient gets home and as long as the patient is in the room
- Look for evidence of smoking in the patient’s sleeping room and other rooms where patient spends time.
- Keep patient’s bedroom door closed
- Suggest the caretaker smoke outdoors, or, if that is not possible, in a single room away from [patient] with the windows open
- Place “No Smoking” signs in key rooms
- Limit smokers to one room, perhaps adult bedroom or place patient doesn’t go frequently

#### **Reduce Patient’s Exposure to Environmental Tobacco Smoke from sources Outside of the Patient’s Home**

##### **[Provide this information to all families]**

- Avoid smoking sections of public places
- Ask guests not to smoke in your house
- Display the “No Smoking” sign in your home
- Check on smoking in homes or places that your patient spends a lot of time; talk with these people about how smoking is bad for asthma

### **Barriers to Implementation**

Sometimes, the family will identify barriers to implementing the remediation recommendations. Always acknowledge the family’s concerns and work with them to identify solutions that work for them. The table below lists some commonly identified barriers to implementing the Reducing Exposure to Tobacco Smoke recommendations and possible solutions.

Common Barriers	Possible Solutions
Caregiver/family member does not want to quit.	Do not push this issue if the patient does not want to make the change. Move on to discussion about how to help keep the patient away from smoke.
Caregiver is unable to keep patient away from smoke.	Start small and increase the number of cigarettes smoked outside gradually.

## MODULE 8: AVOIDING OTHER ASTHMA TRIGGERS

To be delivered to all patients who are exposed to other asthma triggers or patients who are allergen sensitivity test negative to all of the indoor allergens.

### Overview

The first step in controlling asthma is reducing exposure to causal factors (also called triggers) that provoke asthma symptoms and increase underlying airway inflammation. This module focuses on triggers that we cannot test the patient's sensitivity to (i.e., irritants) or that are from a source outside the home (e.g., pollen allergen). The CHAMPS asthma intervention focuses on indoor exposure (irritant or allergen) because that is where the patient spends the majority of time. However, if there are other triggers bothering the patient, address it with the family regardless of whether the source is indoor or outdoor, allergen or irritant.

Allergens provoke airway inflammation and asthma symptoms by triggering immunoglobulin E (IgE) in the immune system. We can test for a patient's sensitivity for allergens by either an allergen skin test or a blood test for IgE. Unlike allergens, we are unable to test the specific irritants to which a patient might be sensitive because tests for sensitivity are IgE dependent. For irritants, start by asking the caregiver and patient what bothers their asthma. If the family identifies irritants, begin counseling by focusing on the irritants they identify as potentially problematic.

This module contains:

- Goals for avoiding irritants and outdoor allergens
- Checklist for Intervention Activities
  - Discussion Points
  - Remediation Recommendations

### Goals for Avoiding Irritants and Outdoor Allergens

- Receive an annual flu shot (if the patient is not sensitive to the vaccine), have patient wash hands often, and speak to clinician about adjusting medications at the first sign of a respiratory virus infection
- Learn which irritants cause asthma symptoms and avoid them
- Avoid using products with strong fumes or odors (e.g., cleaning products, paints, perfumes, candles, incense, air deodorizers)
- Keep the patient out of the home or away from cleaning substances when they are being used
- Try to increase the ventilation in the house by running a fan vented to the outside
- Avoid using natural gas and wood burning cooking and heating sources, if possible
- Vent gas cooking and heating sources outdoors and ensure ventilation is working properly
- Dress warmly in winter and on windy days; wear a scarf that covers the patient's mouth and nose on cold days
- Have an Asthma Action Plan or medicine plan with the patient's doctor before the patient exercises or plays sports; inform the patient's teachers and coaches that the patient may participate but may need to take medication before activity.

## Checklist for Intervention Activities

### Discussion Points

#### Review Different Types of Asthma Triggers

- Explain that when a person with asthma is near something that bothers their airways (called a trigger) the person's already "twitchy" lungs can become even more constricted, which can lead to an asthma attack.
- Remind the family of the difference between irritants and allergens. Give examples:
  - Irritants: cold air, colds, stress, strong odors, dust, weather changes, smoke, exercise.
  - Allergens: proteins from furry and feathered pets, pollen, dust mites, mold, cockroaches, rodents.
- Ask the family if they have noticed anything they think might be an irritant to the patient's asthma. If they identify irritants, ask if they have tried to do anything to limit the patient's exposure to them.
- Discuss the potential irritants that the patient may be exposed to in the home
  - "Some of the things you use every day in the home can get into the air and irritate the patient's asthma."
  - "Cleaning products often have strong odors or fumes that can bother [patient's] asthma."
  - "Some things that even smell nice or pleasant can bother [patient's] asthma; things like scented candles and incense, air fresheners and room deodorizers, perfume and scented cosmetics can trigger asthma symptoms."
  - "Some common heating and cooking sources can cause problems; appliances that burn gas fuel like space heaters, ovens, and stovetop ranges release nitrogen dioxide (NO<sub>2</sub>) into the air, which can make asthma symptoms worse; wood-burning stoves and fireplaces can create wood smoke, which can make asthma symptoms worse."
- Discuss the potential irritants that the patient may be exposed to outside the home
  - "Viral infections that affect the respiratory system can make asthma symptoms worse and are the most common cause of asthma symptoms. The common cold is caught by rubbing your eye or nose after coming on contact with the virus. "
  - "Changes in weather and temperature can sometimes make asthma symptoms worse."
    - "Asthma symptoms are sometimes worse in cold weather."
    - "Asthma symptoms are sometimes made worse by changing temperatures quickly, like going from a warm home to cold weather outside."
  - "Exercising can sometimes make asthma symptoms worse. All patients with asthma can experience exercise-induced asthma."
- Establish goals with the family based on the exposures inside and outside the home. The goal is to reduce, as much as possible, the patient's exposure to any irritants that may make the patient's asthma worse.

## ***Specific Remediation Recommendations***

### **Try to prevent colds and the flu**

- Speak to the patient's clinician about getting an annual flu vaccination; anyone who is not sensitive to vaccines should receive an annual flu shot
- Contact the patient's clinician at first sign of sickness to determine if the patient's medication should be adjusted
- Wash hands thoroughly and often
- Have the patient avoid rubbing his/her eyes and nose, as this is how cold viruses are caught
- Keep patient away from other people who are sick when possible
- Eat a healthy, balanced diet

### **Reduce NO<sub>2</sub> and wood smoke exposure in the home**

- If possible, avoid using fuel-burning and wood-burning appliances in the home
- If this is not possible, ensure heating and cooking appliances are equipped with proper and working ventilation to the outside
- When purchasing or using heaters, look for ones that meet current safety standards and have labels of certification from the Underwriters Laboratories (UL) and the American Gas Association (AGA) Laboratories

### **Avoid using anything that will create a strong fragrance or odor in the home**

- Air freshener, room deodorizers, and other aerosol products
- Candles or incense
- Perfume, cologne, or scented cosmetic products
- Cleaners with harsh odors

### **If cleaners must be used, keep the patient out of the house or away from substances while they are being used. Open windows try to vent air to the outside during and after cleaning. Anticipate exercise-induced symptoms for all patients with asthma**

- Develop an Asthma Action Plan or medication plan with the patient's doctor before exercising
- Always have appropriate asthma medication available when exercising
- Talk to the patient's clinician about having a warm up period before exercising
- Inform teachers and coaches that the patient may participate but may need to take medication before activity

### **Prepare for weather and air pollution conditions that causes symptoms**

- Monitor weather conditions before the patient goes outside
- Have medications handy
- Dress warmly during the winter and on windy days

- Wear a scarf that covers the patient's mouth and nose during cold weather
- Be prepared when transitioning between temperatures (e.g., going from a warm home to cold outdoors) by dressing appropriately
- Check the Air Quality Index before patient goes outside, especially during the summer; avoid playing outside on days when the air quality is poor

**Avoid sensitivities to ingested irritants**

- Talk to clinician about the potential for aspirin or other non-steroidal inflammatory medication to cause asthma symptoms
- Avoid foods processed with sulfites as a preservative (e.g., potato chips, dried fruit, shrimp) in sensitive patients

**Discuss Exercising and Medication Use with a Physician**

- Talk to clinician about exercise-induced asthma. Develop a medication plan or Asthma Action Plan with the clinician for when the patient exercises.
- Review the medication plan or Asthma Action Plan with the family, making sure the patient understands how to respond to symptoms triggered by exercising.

## CONDUCTING FOLLOW-UP TELEPHONE CALLS

Maintaining frequent contact with the patient and family is important for establishing trust and keeping the family engaged in the counseling plan. Follow-up phone calls are an effective way of maintaining contact, checking in on the patient, and assessing if the family is implementing any changes based on the counseling session.

Contact the family by telephone within 2 weeks of each counseling session. Remember to notify the caretaker during the counseling session that this contact will occur. Assess the best time to contact the caretaker and, if possible, accommodate their requests. Note, this may mean calling after normal business hours. If so, consider a work schedule where the Counselor can work one evening a week or one Saturday a month to make these calls.

### Call Objectives

The purpose of the call is to:

- Promote open communication and continue partnership building
- Motivate and encourage the caretaker to implement intervention goals
- Review, reinforce, and clarify key education messages
- Address the family's concerns pertaining to the patient's asthma and asthma management
- Assess caregiver's ability to effectively carry out recommendations
- Provide counseling on additional modules that were not covered during the in-person visit, time permitting

### Call Guidelines

- Calls will occur after each point of contact with either the primary care provider or Asthma Counselor
- Calls may need to occur within 72 hours, especially if patient is experiencing an exacerbation
- Telephone follow-up will occur as needed throughout the program
- Families should be given the Asthma Counselor's contact information for call-in as needed
- If having difficulty reaching a family, attempt to contact the family at different times of the day to improve the likelihood of connecting.

## QUESTIONNAIRES

CHAMPS provides 7 questionnaires to help the practice team assess and monitor the patients in the asthma intervention. Each of the questionnaires is described below.

Questionnaire	Description
<b>Asthma Symptoms &amp; Utilization: Baseline</b>	Documents the patient’s recent asthma history, including symptoms, healthcare utilization, and medication use; used to assess a baseline for measuring improvement in asthma over time by comparing to the Asthma Symptoms & Utilization: Follow-up questionnaire
<b>Asthma Symptoms &amp; Utilization: Follow-up</b>	Documents the patient’s recent asthma history, including symptoms, healthcare utilization, and medication use; used to assess improvement in asthma over time when compared to the Asthma Symptoms & Utilization: Baseline questionnaire
<b>Clinical Assessments</b>	Documents the patient’s pulmonary function test and allergic sensitivity results; sensitivity results are used to tailor the intervention to each unique patient
<b>Child Asthma Risk Assessment Tool (CARAT)</b>	Documents the patient’s asthma risk factors; used to generate a personalized asthma risk treatment plan that is tailored to each unique patient
<b>Demographics</b>	Records basic demographic information the patient, including gender, age, race, ethnicity; practices routinely collect much of this information separately
<b>Home Environment Observation</b>	Documents the environmental risk factors in the patient’s home; used to tailor the intervention to each unique patient
<b>Asthma Counselor Checklist</b>	Documents the Asthma Counselor’s counseling progress at each visit; used to guide counseling visits and track success toward counseling objectives over time

Instructions for completing each questionnaire are provided on the individual forms. Questionnaires are provided below in the order specified by the table.

Community Healthcare for Asthma Management and Prevention of Symptoms

**ASTHMA SYMPTOMS & UTILIZATION: BASELINE**

Patient Name:

Date:

This form is used to collect information about the patient's asthma at the beginning of the intervention. The answers on this form will be compared to the answers at 6 months and 12 months to chart patient improvement.

When asking the questions below, it is helpful to show the family a calendar as a reference.

<p><b>1. In the <u>last 4 weeks</u>, how many days did the child have wheezing or tightness in the chest or cough?</b></p> <p>_____ days</p>	<p><b>2. In the <u>last 4 weeks</u>, how many days did the child have to slow down or stop play or activities because of asthma, wheezing or tightness in the chest, or cough?</b></p> <p>_____ days</p>
<p><b>3. In the last 4 weeks, how many nights did the child wake up because of asthma, wheezing or tightness in the chest, or cough?</b></p> <p>_____ nights</p>	<p><b>4. During the <u>last 4 weeks</u>, how many days did the child miss school due to asthma?</b></p> <p>_____ days</p>
<p><b>5. During the <u>past 12 months</u>, how many times did the patient have to stay overnight in the hospital for asthma problems or for any reason where asthma problems were addressed?</b> [Do not include overnight waits in the ED unless the child was there for more than 24 hours, not including the wait time. This should be the total number of admissions, not the total number of nights.]</p> <p>_____ times</p>	<p><b>6. Not counting hospitalizations, during the <u>past 12 months</u>, how many times has the patient had an urgent visit to a clinic, doctor, or hospital emergency department for emergency care for asthma?</b> [By urgent visit, I mean not scheduled more than 1 day ahead of time. Do not include visits which resulted in an overnight hospitalization – hospitalizations are covered in question 5 – and do not count 2 visits to these types of facilities that occurred on the same day as separate events.]</p> <p>_____ times</p>
<p><b>7. Is the child currently taking any medications prescribed for asthma every day, even when he is/she is well, to prevent symptoms?</b></p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	<p><b>8. Does the child have an Asthma Action Plan?</b> [An Asthma Action Plan is a set of written instructions that tell you how to take your medications when you are having asthma symptoms.]</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>

Community Healthcare for Asthma Management and Prevention of Symptoms

**ASTHMA SYMPTOMS & UTILIZATION: FOLLOW UP**

Patient Name:

Date:

This form is used to collect information about the patient's asthma 6 months after the baseline assessment and again 12 months after the baseline assessment. Answers on this form can be compared to the answers at baseline to chart patient improvement.

When asking the questions below, it is helpful to show the family a calendar as a reference.

<p><b>1. In the <u>last 4 weeks</u>, how many days did the child have wheezing or tightness in the chest or cough?</b></p> <p>_____ days</p>	<p><b>2. In the <u>last 4 weeks</u>, how many days did the child have to slow down or stop play or activities because of asthma, wheezing or tightness in the chest, or cough?</b></p> <p>_____ days</p>
<p><b>3. In the last 4 weeks, how many nights did the child wake up because of asthma, wheezing or tightness in the chest, or cough?</b></p> <p>_____ nights</p>	<p><b>4. During the <u>last 4 weeks</u>, how many days did the child miss school due to asthma?</b></p> <p>_____ days</p>
<p><b>5. During the <u>past 6 months</u>*, how many times did the patient have to stay overnight in the hospital for asthma problems or for any reason where asthma problems were addressed? [Do not include overnight waits in the ED unless the child was there for more than 24 hours, not including the wait time. This should be the total number of admissions, not the total number of nights.]</b></p> <p>_____ times</p>	<p><b>6. Not counting hospitalizations, during the <u>past 6 months</u>*, how many times has the patient had an urgent visit to a clinic, doctor, or hospital emergency department for emergency care for asthma? [By urgent visit, I mean not scheduled more than 1 day ahead of time. Do not include visits which resulted in an overnight hospitalization – hospitalizations are covered in question 5 – and do not count 2 visits to these types of facilities that occurred on the same day as separate events.]</b></p> <p>_____ times</p>
<p><b>7. Is the child currently taking any medications prescribed for asthma every day, even when he is/she is well, to prevent symptoms?</b></p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	<p><b>8. Does the child have an Asthma Action Plan?</b> [An Asthma Action Plan is a set of written instructions that tell you how to take your medications when you are having asthma symptoms.]</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>

\* Follow-up visits are designed to be conducted every 6 months in CHAMPS. When comparing results between the baseline and follow-up visits, note that the follow-up visits ask about healthcare utilization in the last 6 months compared to utilization in the last 12 months at baseline.

Community Healthcare for Asthma Management and Prevention of Symptoms

**CLINICAL ASSESSMENTS**

Patient Name:

Date:

The questions on this form capture basic allergen sensitivity and pulmonary function information about the patient. The allergen sensitivity information is needed to provide patient-tailored asthma counseling. The pulmonary function data may be used to diagnose the child's asthma. Your practice may collect spirometry data, exhaled nitric oxide, or both.

Allergen Skin Test/IgE Test Results

**1. Place a check mark beside each allergen to which the child is sensitive (had a positive test result):**

- Dust Mite
- Cockroach
- Rodent (mice and/or rats)
- Cat
- Dog
- Mold

Spirometry Test Results

**2. Record the values from the spirometer for each of the measures listed below**

**Best**

**FEV1 Percent Predicted**

FVC      \_\_\_\_ . \_\_\_\_ \_\_\_\_ L

FEV1     \_\_\_\_ . \_\_\_\_ \_\_\_\_ L

\_\_\_\_ \_\_\_\_ \_\_\_\_ . \_\_\_\_ % predicted

FEV1/FVC   \_\_\_\_ . \_\_\_\_ \_\_\_\_ L

FENO Test Results

**3. Record the FENO concentration from the FENO machine below**

\_\_\_\_ \_\_\_\_ \_\_\_\_ . \_\_\_\_ ppb

Community Healthcare for Asthma Management and Prevention of Symptoms

**CHILD ASTHMA RISK ASSESSMENT TOOL (CARAT)**

**A3. Patient Name:**

**A1. Date:**

The questions on this form correspond to questions on the online CARAT evaluation tool, available at: <http://carat2.asthmarisk.org/>. You may fill out these questions directly online if you have a computer or tablet with internet access available for use with the patient. Otherwise, complete the written questionnaire with the patient and then enter the results into the CARAT website to generate a customized risk assessment report. The custom report used to identify counseling topics and modules for the asthma counseling sessions.

Note: To complete Section C, you will need completed allergen sensitivity test results.

Section A

**A2. Child's date of birth?**

**A4. Child's assessment age?**

Section B

**B1. What grade is your child in? [If summer, enter the child's grade for next fall.]**

- Kindergarten
- 1<sup>st</sup>
- 2<sup>nd</sup>
- 3<sup>rd</sup>
- 4<sup>th</sup>
- 5<sup>th</sup>
- 6<sup>th</sup>
- 7<sup>th</sup>
- 8<sup>th</sup>
- Not in school

**B2. Do any of your child's parents, brothers, sisters, or grandparents have asthma?**

- Yes
- No [SKIP TO B3]
- No response [SKIP TO B3]

**B2a. Altogether, how many of these relatives have asthma?**

\_\_\_\_\_

**B3. Do you have a regular doctor or health care provider who treats your child's asthma? [Does not have to be an asthma specialist.]**

- Yes
- No
- No response

<p><b>B4. During the past 12 months, when your child went to a doctor for asthma care, was it usually in an ER or clinic/doctor's office?</b></p> <p><input type="checkbox"/> ER [SKIP TO B5]</p> <p><input type="checkbox"/> Clinic/office</p> <p><input type="checkbox"/> Both, mostly ER [SKIP TO B5]</p> <p><input type="checkbox"/> Both, mostly clinic/office</p> <p><input type="checkbox"/> Never had a doctor's visit [SKIP TO B5]</p> <p><input type="checkbox"/> No response [SKIP TO B5]</p>	<p><b>B4a. Did your child usually see the same doctor at the clinic or office?</b></p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> No response</p>
<p><b>B5. During the past 12 months, did your child take medicines for asthma?</b></p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> No response</p>	<p><b>B6. Some asthma medicines are taken only when the child is having asthma signs or symptoms. Other medicines are taken even when the child is not having symptoms. Does your child take medicines only when he/she is having signs or symptoms or even when he/she is not having symptoms, or both times?</b></p> <p><input type="checkbox"/> Only for symptoms</p> <p><input type="checkbox"/> Only when no symptoms</p> <p><input type="checkbox"/> Both</p> <p><input type="checkbox"/> No response</p>
<p><b>B7. Has a doctor or health care provider ever given you written instructions for what to do about taking medicines?</b></p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> No response</p>	<p><b>B8. Has your child had any problems taking medications at school?</b></p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> No response</p>
<p><b>B9. Many people have problems making and keeping doctor's appointments for their child's asthma. At other times, it is hard to get to the office or they are not open at good times. In the past year, have you had any of these types of problems making or keeping appointments for your child's asthma?</b></p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> No response</p>	<p><b>B10. Does your child's pillow have a zipped cover for allergies?</b></p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> No response</p>

<p><b>B11. Does your child's mattress have a zipped cover for allergies?</b></p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> No response</p>	<p><b>B12. Do you use a humidifier/vaporizer in your child's bedroom?</b></p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> No response</p>
<p><b>B13. Do you have carpeting (or rugs) in your child's bedroom?</b></p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> No response</p>	<p><b>B14. Do you have carpeting (or rugs) in your TV/family room?</b></p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> No response</p>
<p><b>B15. Does your kitchen have a gas stove?</b></p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> No response</p>	<p><b>B16. Do you sometimes use the gas stove to help heat your house?</b></p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> No response</p>
<p><b>B17. Is there any moisture or mildew anywhere in the house on the... (Choose all that apply)</b></p> <p><input type="checkbox"/> Ceiling</p> <p><input type="checkbox"/> Walls</p> <p><input type="checkbox"/> Windows</p> <p><input type="checkbox"/> Floors</p> <p><input type="checkbox"/> No response</p>	<p><b>B18. Have you had any problems with... (Choose all that apply)</b></p> <p><input type="checkbox"/> Cockroaches</p> <p><input type="checkbox"/> Mice</p> <p><input type="checkbox"/> Rats</p> <p><input type="checkbox"/> No response</p>
<p><b>B19. Do you have any pets? (Choose all that apply)</b></p> <p><input type="checkbox"/> Dog</p> <p><input type="checkbox"/> Cat</p> <p><input type="checkbox"/> Hamster, guinea pig, or rabbit</p> <p><input type="checkbox"/> No response</p>	<p><b>B20. Do you smoke cigarettes?</b></p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> No response</p>
<p><b>B21. Does your child smoke cigarettes?</b></p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> No response</p>	<p><b>B22. How many other people who live in your home smoke?</b></p> <p>_____</p>

<p><b>B23. Does anyone else who takes care of your child smoke?</b></p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> No response</p>	<p><b>B24. Have you ever run out of medicines for your child's asthma and not had any on hand when your child had an asthma attack?</b></p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> No response</p>
<p><b>B25. For many reasons, children do not always get their medicines exactly when they are supposed to. On a scale of 1 to 5, how many problems do you usually face when trying to be sure your child gets his/her medicines? [1 is no problems with medicines and 5 is a lot of problems with medicines.]</b></p> <p style="text-align: center;">No problems <span style="margin-left: 200px;">A lot of problems</span></p> <p style="text-align: center;">1      2      3      4      5      No response</p>	
<p><b>B26. Have you ever run out of medicines for your child's asthma and not had any on hand when your child had an asthma attack? [1 is never misses a dose and 5 is often misses a dose.]</b></p> <p style="text-align: center;">Never misses a dose <span style="margin-left: 150px;">Often misses a dose</span></p> <p style="text-align: center;">1      2      3      4      5      No response</p>	
<p><b>B27. Does your child take asthma medication on his/her own? Would you say...</b></p> <p><input type="checkbox"/> Not at all</p> <p><input type="checkbox"/> Once in a while</p> <p><input type="checkbox"/> Quite a bit</p> <p><input type="checkbox"/> All of the time</p> <p><input type="checkbox"/> No meds</p> <p><input type="checkbox"/> No response</p>	<p><b>B28. Are you concerned about your child's behaviors or emotions?</b></p> <p><input type="checkbox"/> Not at all</p> <p><input type="checkbox"/> Once in a while</p> <p><input type="checkbox"/> Quite a bit</p> <p><input type="checkbox"/> All of the time</p> <p><input type="checkbox"/> No response</p>
<p><b>B29. Do you have concerns about how you have been coping with things in the past few months?</b></p> <p><input type="checkbox"/> Not at all</p> <p><input type="checkbox"/> Once in a while</p> <p><input type="checkbox"/> Quite a bit</p> <p><input type="checkbox"/> All of the time</p> <p><input type="checkbox"/> No response</p>	<p><b>B30. Have you been feeling unusually stressed lately?</b></p> <p><input type="checkbox"/> Not at all</p> <p><input type="checkbox"/> Once in a while</p> <p><input type="checkbox"/> Quite a bit</p> <p><input type="checkbox"/> All of the time</p> <p><input type="checkbox"/> No response</p>

<p><b>B31. It is possible to control my child's asthma so that he/she can play like other children.</b></p> <p><input type="checkbox"/> Strongly agree</p> <p><input type="checkbox"/> Agree</p> <p><input type="checkbox"/> Disagree</p> <p><input type="checkbox"/> Strongly disagree</p> <p><input type="checkbox"/> No response</p>	<p><b>B32. It is possible to manage my child's asthma so he/she is free of symptoms.</b></p> <p><input type="checkbox"/> Strongly agree</p> <p><input type="checkbox"/> Agree</p> <p><input type="checkbox"/> Disagree</p> <p><input type="checkbox"/> Strongly disagree</p> <p><input type="checkbox"/> No response</p>
<p><b>B33. My child should not have problems from the asthma medicine he/she takes.</b></p> <p><input type="checkbox"/> Strongly agree</p> <p><input type="checkbox"/> Agree</p> <p><input type="checkbox"/> Disagree</p> <p><input type="checkbox"/> Strongly disagree</p> <p><input type="checkbox"/> No response</p>	<p><b>B34. I have little control over my child's asthma.</b></p> <p><input type="checkbox"/> Strongly agree</p> <p><input type="checkbox"/> Agree</p> <p><input type="checkbox"/> Disagree</p> <p><input type="checkbox"/> Strongly disagree</p> <p><input type="checkbox"/> No response</p>
<p><b>B35. I often feel helpless in dealing with my child's asthma.</b></p> <p><input type="checkbox"/> Strongly agree</p> <p><input type="checkbox"/> Agree</p> <p><input type="checkbox"/> Disagree</p> <p><input type="checkbox"/> Strongly disagree</p> <p><input type="checkbox"/> No response</p>	
Section C	
<p><b>C1. Are skin test results available for this child?</b></p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	<p><b>Does the skin test indicate that child is allergic to the following:</b></p> <p><b>C2. Dust mites</b>      <input type="checkbox"/> Yes    <input type="checkbox"/> No</p> <p><b>C3. Cockroaches</b>    <input type="checkbox"/> Yes    <input type="checkbox"/> No</p> <p><b>C4. Rodents</b>        <input type="checkbox"/> Yes    <input type="checkbox"/> No</p> <p><b>C5. Cats</b>            <input type="checkbox"/> Yes    <input type="checkbox"/> No</p> <p><b>C6. Dogs</b>            <input type="checkbox"/> Yes    <input type="checkbox"/> No</p> <p><b>C7. Mold</b>            <input type="checkbox"/> Yes    <input type="checkbox"/> No</p>

Community Healthcare for Asthma Management and Prevention of Symptoms

**DEMOGRAPHICS**

**Patient Name:**

**Date:**

The questions on this form capture basic demographic information about the patient and caretaker. Demographic data can be useful for diagnosing the patient's asthma (asthma morbidity is known to differ by race and ethnicity), conducting asthma counseling, and reporting on program performance. Your practice probably has much of this information in the patient's medical record.

**1. What is the patient's date of birth?**

**2. What is the patient's gender?**

- Male
- Female

**3. What is the caretaker's date of birth?**

**4. What is the caretaker's gender?**

- Male
- Female

**5. How is the caretaker related to the patient?**

- Parent
- Grandparent
- Other: \_\_\_\_\_

**6. What is caretaker's current marital status?**

- Married
- Single
- Divorced
- Widowed

**7. Is the patient of Hispanic or Latino background?**

- Yes
- No

**8. What is the patient's racial background?**

- Black or African American
- White
- Asian
- American Indian or Alaska Native
- Native Hawaiian or Other Pacific Islander
- Don't know
- Other: \_\_\_\_\_

Community Healthcare for Asthma Management and Prevention of Symptoms

**HOME ENVIRONMENT OBSERVATION**

**Patient Name:**

**Date:**

The questions on this form are used to assess environmental exposures. Attempt to answer each question through visual inspection, rather than asking the caretaker.

Beside each question is a list of the asthma counseling modules that correspond to the answers. Use this survey in conjunction with the CARAT to determine which tailored modules (modules 3-8) to provide to the patient.

**Remember that for modules 3-6, the patient should only receive the module if they are both sensitive to the allergen (per the allergen sensitivity test results) and exposed (per this checklist).**

Question	Counseling Module
<p><b>1. What is the type of dwelling?</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Detached house</li> <li><input type="checkbox"/> Duplex/Triplex</li> <li><input type="checkbox"/> Row house</li> <li><input type="checkbox"/> Low rise apartment (1-3 floors)</li> <li><input type="checkbox"/> High rise apartment (&gt;3 floors)</li> <li><input type="checkbox"/> Mobile home/Trailer</li> <li><input type="checkbox"/> Other</li> </ul> <p>Specify: _____</p>	<p>General: multi-family dwellings can present unique challenges for dealing with a variety of allergens like cockroaches, rodents, and mold. Tenants often have no control over the building, including structural problems (e.g., holes and gaps in the structure that can serve as entry points for pests), and plumbing problems (major source of moisture and mold). These same problems can exist for detached houses and mobile homes, but homeowners often have more control over these types of dwellings. In all cases, being aware of each family's home type can provide insight into the types of exposures they face, and challenges in remediating those exposures.</p>

**KITCHEN, BATHROOM, AND TV/FAMILY ROOM (OR TV AREA, IF NO SEPARATE ROOM)**

For each of the following questions, consider the kitchen, bathroom, and TV/family room (or TV area). If the patient sleeps in the TV/family room, consider this room the bedroom and answer the following questions for just the kitchen and bathroom.

Question	Counseling Module
<p><b>2. Check beside each of the following that you find in the room:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Cockroach stains</li> <li><input type="checkbox"/> Living or dead cockroaches (or parts)</li> <li><input type="checkbox"/> Mouse droppings</li> <li><input type="checkbox"/> Overflowing trash can</li> <li><input type="checkbox"/> Unsealed/open food or crumbs</li> <li><input type="checkbox"/> Dirty dishes/cooking pots</li> <li><input type="checkbox"/> Cracks larger than the thickness of a dime</li> <li><input type="checkbox"/> Holes larger than a pencil eraser</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> 3-Cockroach</li> <li><input type="checkbox"/> 3-Cockroach</li> <li><input type="checkbox"/> 4-Rodent</li> <li><input type="checkbox"/> 3-Cockroach &amp; 4-Rodent</li> <li><input type="checkbox"/> 3-Cockroach &amp; 4-Rodent</li> <li><input type="checkbox"/> 3-Cockroach</li> <li><input type="checkbox"/> 4-Rodent</li> <li><input type="checkbox"/> 3-Cockroach</li> </ul>

Question	Counseling Module
<p><b>3. Do you see any evidence of moisture, leaks, or standing water in any of these rooms?</b> [dripping faucets/pipes/water heaters, standing water in pots/pans in sink, water stains on ceilings and walls, overflow around toilet/sink/tub, humidifier, condensation/fog on windows and mirrors, un-vented bathroom, moist basement/crawl space]</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p>Note locations where water was found for the counselor:</p>	<p><input type="checkbox"/> 3-Cockroach, 4-Rodent, &amp; 6-Mold</p>
<p><b>4. Is there a musty smell in any of these rooms?</b></p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	<p><input type="checkbox"/> 6-Mold</p>
<p><b>5. Is there a gas cooking stove, gas range, or gas oven in the kitchen?</b></p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	<p><input type="checkbox"/> 8-Other Asthma Triggers (NO<sub>2</sub> exposure)</p>
<p><b>6. Does the kitchen have a working hood/vent that is vented outside?</b></p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	<p><input type="checkbox"/> 8-Other Asthma Triggers (NO<sub>2</sub> exposure)</p>
<p><b>7. Do you see any evidence of smoking in any of these rooms?</b> [ashtrays, cigarette butts, smell of tobacco smoke]</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	<p><input type="checkbox"/> 7-Environmental Tobacco Smoke</p>
<p><b>8. Check all rooms with wall-to-wall carpeting.</b></p> <p><input type="checkbox"/> Patient's bedroom</p> <p><input type="checkbox"/> Kitchen</p> <p><input type="checkbox"/> Bathroom</p> <p><input type="checkbox"/> TV/Family Room</p>	<p><input type="checkbox"/> 2-Safe Sleeping Zone</p> <p>General: carpets trap dust, mold, pet, and pest allergens in the home. If possible, families should remove carpets, especially in the bedroom and other rooms the patient uses most frequently (e.g., living room). If carpet removal is not an option, routine cleaning with a HEPA vacuum is advised.</p>



Community Healthcare for Asthma Management and Prevention of Symptoms

**ASTHMA COUNSELOR CHECKLIST**

**Patient Name:**

**Date:**

This form is used to document each Asthma Counselor's interaction with a patient, and will provide an ongoing record of progress made during counseling sessions. Do not ask these questions of the patient; answer them based on your own assessments. This form should be completed at the end of the counseling session.

**Section 1: Participant Overview**

**1. Location of the session**

- Clinic
- Patient's home
- Neutral location: Specify \_\_\_\_\_
- Telephone

**2. Participants present for the session**

- Caretaker
- Patient
- Both

**3. Is the patient having any problems taking his/her asthma medications?**

- Yes
- No
- Not applicable

**4. What problems does the child face in taking his/her medications 100% of the time?**

- |   |                              |                             |
|---|------------------------------|-----------------------------|
| Complicated family lifestyle                                  | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Concern about medication side effects                         | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Problems with using controller medication device              | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Child questions need for medication because he/she feels well | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Child resistant to taking medication due to peer pressure     | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Medication is not working                                     | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Remembering to take medications                               | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Obtaining medications   | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Affording medications   | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Other   | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Specify: _____  |                              |                             |





## PATIENT EDUCATION HANDOUTS

The CHAMPS Patient Education Handouts provide concise, visual, take-home information for patients and their families. The handouts correspond to specific Asthma Counseling Modules – the core patient education components of the Asthma Counseling sessions. Refer to [Conducting Individual Counseling Sessions section](#) for instructions on how to implement the asthma counseling modules. Handouts are most effective when counselors follow these simple guidelines:

- Explain the information on each handout, making sure the family understands the content, before giving them a copy.
- Share the handouts slowly over multiple visits; attempting to give out multiple handouts at a single visit may lead to "information overload".
- Provide only the handouts that are pertinent to their patient’s unique sensitivities and exposures; giving families all the handouts, regardless of their patient’s sensitivities and exposures is misleading and confusing.

Handouts are provided below in the order specified by the table.

Handout	Asthma Counseling Module
What is Asthma?	Module 1 – Asthma & Asthma Medications
What Happens in the Lungs During an Asthma Attack?	Module 1 – Asthma & Asthma Medications
Asthma Action Plan – Blank	Module 1 – Asthma & Asthma Medications
Asthma Action Plan – Example	Module 1 – Asthma & Asthma Medications
School Asthma Action Plan	Module 1 – Asthma & Asthma Medications
Allergen Sensitivity Test Results	Module 1 – Asthma & Asthma Medications
Tips for Taking your Medicine	Module 1 – Asthma & Asthma Medications
Using a Metered Dose Inhaler with a Spacer	Module 1 – Asthma & Asthma Medications
Using a Diskus Inhaler	Module 1 – Asthma & Asthma Medications
Goals for Getting Rid of Dust Mites	Module 2 – Safe Sleeping Zone
Goals for Getting Rid of Cockroaches	Module 3 – Cockroach
Goals for Getting Rid of Mice and Rats	Module 4 – Rodent
Goals for Cutting Down on your Contact with Pets	Module 5 – Furry Friends
Goals for Getting Rid of Mold	Module 6 – Mold
Goals for Avoiding Exposure to Smoke	Module 7 – Environmental Tobacco Smoke
Goals for Controlling Other Things that Make Asthma Act Up	Module 8 – Other Asthma Triggers

## WHAT IS ASTHMA?

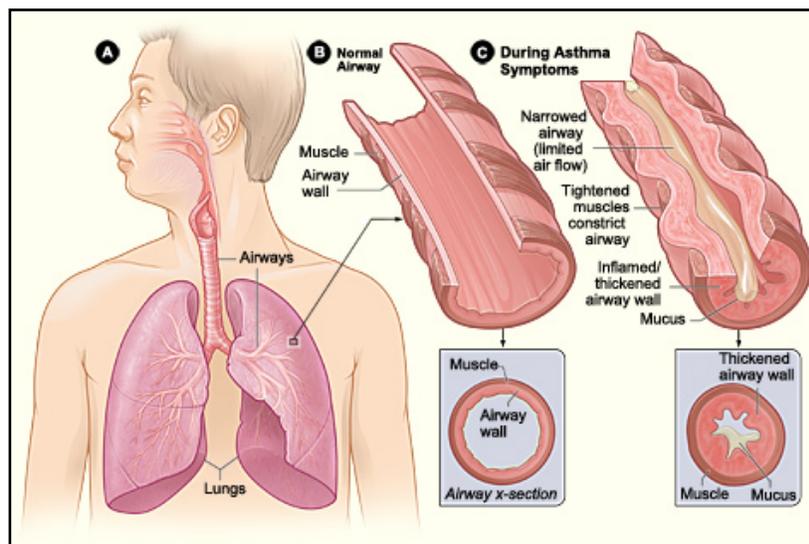
Asthma is a chronic disease of the airways (breathing tubes) in the lungs. This means that you have asthma even when you feel fine and that your asthma can flare up at any time.

Asthma affects the airways in these ways:

- Walls of the airways are more swollen. This is called inflammation.
- The airways are also extra sensitive, meaning that they react to certain things that you breathe in. Muscles around the airways can easily tighten and squeeze down.
- The airways make more thick and sticky mucus

All of these changes make the airways narrow, so it is hard for air to go in and out of your lungs. This can make it hard to breathe and cause other asthma symptoms like coughing and wheezing.

There is no cure for asthma, but there is a lot you can do to control your asthma so that you can live a normal, active life and sleep through the night without asthma problems.



This picture shows where the lungs are in the body. It also shows the differences between an airway not affected by asthma and an airway affected by asthma.

Adapted from the National Heart Lung and Blood Institute's Diseases and Conditions Index:

[http://www.nhlbi.nih.gov/health/dci/Diseases/Asthma/Asthma\\_WhatIs.html](http://www.nhlbi.nih.gov/health/dci/Diseases/Asthma/Asthma_WhatIs.html)

## What causes asthma?

- The exact cause of asthma is not known. Genetics (what runs in your family) and environment (what is in the air you breathe) are both important.
- Many different things (called **triggers**) can make asthma worse:
  - Allergens – pollen, pets, cockroach, mold, dust mites
  - Irritants – smoke, perfumes, cleaning products
  - Colds, weather changes, exercise, emotions
- It is important to learn about your asthma triggers, since they can be different for different people. Knowing your triggers and how to avoid them can help keep you healthy.

## What are asthma symptoms?

Symptoms are **what you feel** in your body. Everybody is different, but here are some common asthma symptoms:

- Cough
- Shortness of breath
- Wheezing
- Chest tightness or chest pain

You might have just some or all of these symptoms at times. They might not bother you much or they might feel very bad if your asthma is flaring up.

## What can you do to control your asthma and prevent symptoms?

1. Follow your Asthma Action Plan, even when you are feeling well.
2. Try to stay away from things that make your asthma worse.
3. Talk to your doctor if you have more symptoms than usual or need to use your quick-relief medicine more often.



## What should you do if you start to have problems with your asthma?

1. Look at your Asthma Action Plan to know what medicine to take and how much.
2. Take your quick-relief medicine as soon as you have symptoms. This can keep your symptoms from getting worse.
3. Call your doctor or get medical care if the medicine does not help.

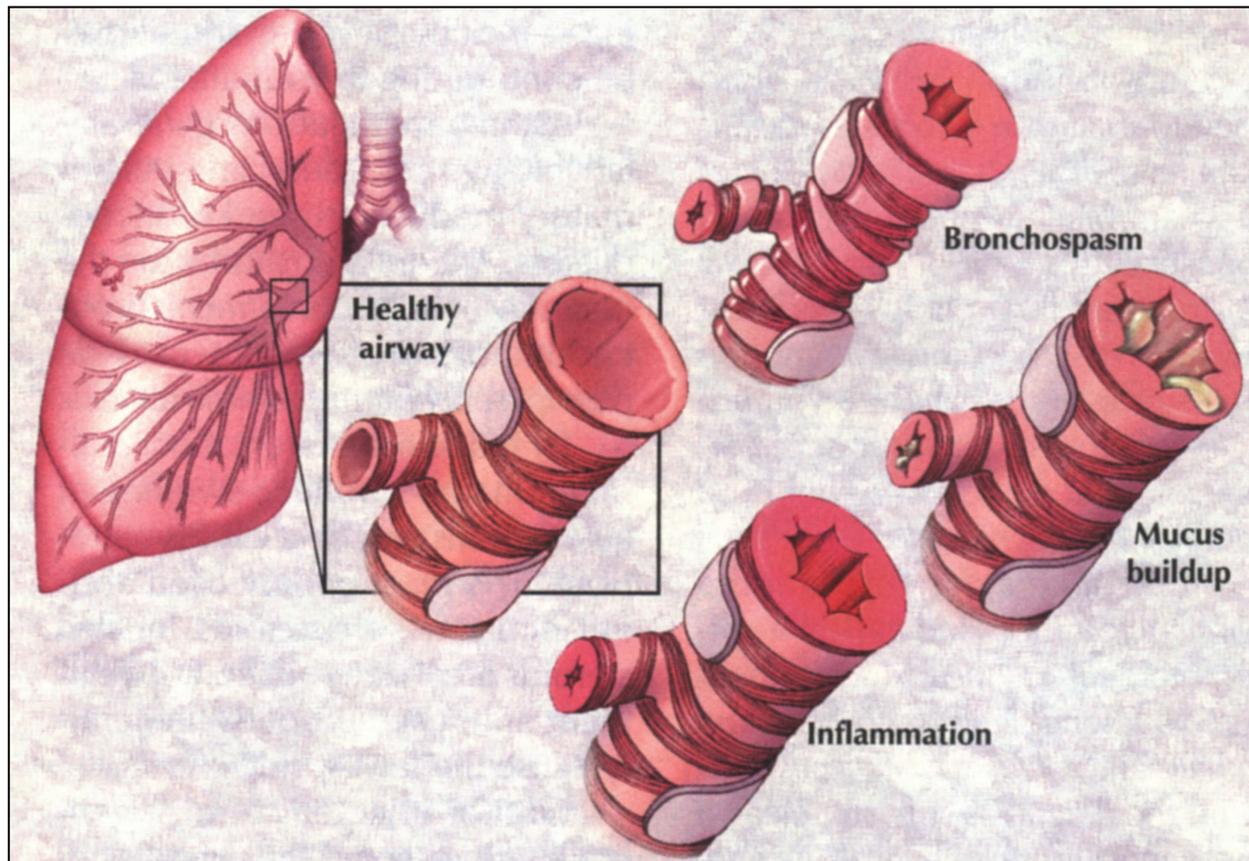
## WHAT HAPPENS INSIDE THE LUNGS DURING AN ASTHMA ATTACK?

The air that you breathe goes from your mouth and nose to your lungs, which are located under your ribs. The lungs are made up of airways that get smaller and smaller, like the branches of a tree.

When your asthma is well controlled, your airways are wide open and you can breathe easily (see the "Healthy airway" diagram below).

During an asthma attack, three things happen:

1. The airways get squeezed a little. Tiny muscles around the airways squeeze like rubber bands that are just a little tight. This is called "bronchospasm."
2. The sides of the airways swell up. This makes the airways sensitive to things that start asthma attacks. This is called "inflammation."
3. The insides of the airways make too much mucus.



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Medicine will open up the airways. One kind is taken every day to keep swelling down. Another kind relaxes the muscles during an asthma attack so the muscles will not squeeze the airways.

Patient Name: \_\_\_\_\_ Practice Daytime Telephone #: \_\_\_\_\_  
 Doctor/Nurse: \_\_\_\_\_ Practice After Hours Telephone #: \_\_\_\_\_  
 Start Date: \_\_\_\_/\_\_\_\_/\_\_\_\_



**GREEN ZONE: Doing Well** Take these daily controller medicines:

- You have no coughing, wheezing, chest tightness, or difficulty breathing.
- You can play, exercise, work, and do all your other usual activities without asthma symptoms.

Medicine	How much to take	When and how often

Before play, sports or exercise:

Medicine	How much to take	When and how often

**YELLOW ZONE: Caution/Getting Worse** CONTINUE CONTROLLER MEDICINES; ADD QUICK-RELIEF MEDICINE:

- You have asthma symptoms of coughing, wheezing, chest tightness, or difficulty breathing during the day or night.
- You have asthma symptoms when you play, exercise, work, or do other activities.

Medicine	How much to take	When and how often

**RED ZONE: Alert- your asthma is getting worse fast!** GIVE MEDICINE BELOW AND CALL US IMMEDIATELY. IF YOU CANNOT REACH YOUR DOCTOR OR NURSE IMMEDIATELY, PROCEED TO THE EMERGENCY DEPARTMENT. DO NOT WAIT!

- You have severe asthma symptoms of coughing, wheezing, chest tightness, or difficulty breathing that does not go away with albuterol.
- You have trouble walking or talking due to asthma symptoms.
- You are breathing hard and fast
- Your nose opens wide or your ribs show when you breathe.
- Your lips or fingers turn blue or you are confused (in this case, call 9-1-1).

Medicine	How much to take	When and how often

Patient Name: \_\_\_\_\_ Practice Daytime Telephone #: \_\_\_\_\_  
 Doctor/Nurse: \_\_\_\_\_ Practice After Hours Telephone #: \_\_\_\_\_  
 Start Date: \_\_\_\_/\_\_\_\_/\_\_\_\_



**GREEN ZONE: Take these daily controller medicines:**

**Doing Well**

- You have no coughing, wheezing, chest tightness, or difficulty breathing.
- You can play, exercise, work, and do all your other usual activities without asthma symptoms.

Medicine	How much to take	When and how often

Before play, sports or exercise:

Medicine	How much to take	When and how often
Albuterol (Ventolin/Xopenex/ProAir/Proventil)	2 puffs with spacer or one vial by nebulizer	<ul style="list-style-type: none"> <li>5-20 minutes before exercise</li> </ul>

**YELLOW ZONE: CONTINUE CONTROLLER MEDICINES; ADD QUICK-RELIEF MEDICINE:**

**Caution/Getting Worse**

- You have asthma symptoms of coughing, wheezing, chest tightness, or difficulty breathing during the day or night.
- You have asthma symptoms when you play, exercise, work, or do other activities.

Medicine	How much to take	When and how often
Albuterol (Ventolin/Xopenex/ProAir/Proventil)	Give 2 puffs with spacer or one vial by nebulizer	<ul style="list-style-type: none"> <li>If you feel better, use albuterol every 4 hours as needed.</li> <li>Call the study practice if albuterol is needed more often than every 4 hours or if you stay in the yellow zone for more than 24 hours.</li> <li>If unable to reach the study practice, go to the nearest Emergency Department.</li> </ul>

**RED ZONE: GIVE MEDICINE BELOW AND CALL US IMMEDIATELY. IF YOU CANNOT REACH YOUR DOCTOR OR NURSE IMMEDIATELY, PROCEED TO THE EMERGENCY DEPARTMENT. DO NOT WAIT!**

**Alert- your asthma is getting worse fast!**

- You have severe asthma symptoms of coughing, wheezing, chest tightness, or difficulty breathing that does not go away with albuterol.
- You have trouble walking or talking due to asthma symptoms.
- You are breathing hard and fast
- Your nose opens wide or your ribs show when you breathe.
- Your lips or fingers turn blue or you are confused (in this case, call 9-1-1).

Medicine	How much to take	When and how often
Albuterol (Ventolin/Xopenex/ProAir/Proventil)	Immediately give 4 puffs with spacer or 2 vials at once by nebulizer	<ul style="list-style-type: none"> <li>Do this once and call study practice right away.</li> <li>If you feel better, repeat albuterol treatment in 20 minutes while calling us.</li> <li><b>If not better after first dose, call 9-1-1 or go to nearest Emergency Department.</b></li> </ul>
Prednisone/Prednisolone	Take as instructed by Clinician	<ul style="list-style-type: none"> <li>Call the study practice before using this medicine.</li> </ul>

**SCHOOL ASTHMA ACTION PLAN**

Name: \_\_\_\_\_

Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Clinician: \_\_\_\_\_

Telephone #: \_\_\_\_\_

Self-administration of medication by this student is hereby authorized by the parent/guardian and the Clinician. If this student is enrolled in a school-based practice, the parent/guardian also gives permission for the school nurse and the school-based practice to exchange information and otherwise collaborate in the asthma management of the patient.

Parent/Guardian authorization for self-administration and release of information:

\_\_\_\_\_  
Signature

Clinician's authorization for self-administration:

\_\_\_\_\_  
Signature

## ALLERGEN SENSITIVITY TEST RESULTS

Name: \_\_\_\_\_

Date of Test: \_\_\_ \_\_\_ / \_\_\_ \_\_\_ / \_\_\_ \_\_\_

Your test showed that you were not sensitive to any of the allergens tested.

Your test showed that you were sensitive to the following allergens:

Dust mite

Dog

Cat

Cockroach

Mouse

Rat

Mold

Your skin test was inconclusive.

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## TIPS FOR TAKING YOUR MEDICINE



Make sure you understand your asthma action plan.

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



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



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



Learn the names of your medicines and what they do.



Make sure you always have enough of your medicines.



Talk with your teacher or school health care provider about your asthma action plan. Give them a copy.

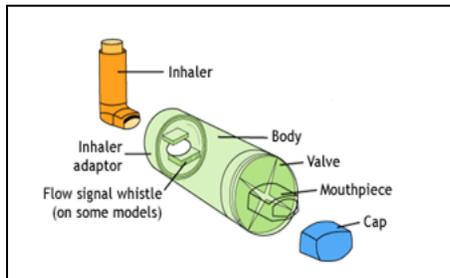


Know what to do about your asthma while at school, work, or playing sports.



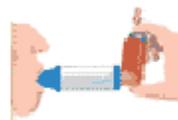
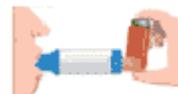
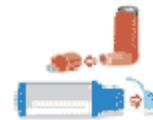
## USING A METERED DOSE INHALER WITH A SPACER

You will use a spacer with your inhaler. Following these directions will help put more of your medicine in your lungs. This will open up your air passages and help you breathe easier and feel better.



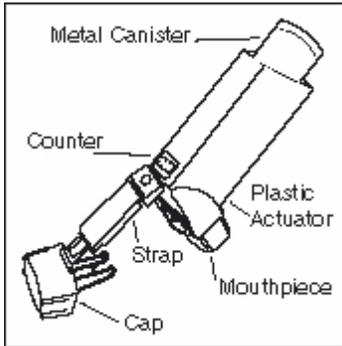
### To use your inhaler with a spacer

1. If your inhaler is new or has not been used for 2 weeks: Shake well. Push down on the inhaler 2-4 times into the air. Shake each time you push down on the inhaler.
2. Shake the inhaler well before use (3-4 shakes and hard for about 5 seconds). You should be standing while using your inhaler.
3. Remove the cap from your inhaler, and from your spacer, if it has one
4. Put the inhaler into the spacer
5. Breathe out, away from the spacer
6. Bring the spacer to your mouth, put the mouthpiece between your teeth and close your lips around it
7. Press the top of your inhaler once
8. Breathe in **very slowly** until you have taken a full breath. If you hear a whistle sound, you are breathing in too fast. **Slowly** breathe in.
9. Hold your breath for about ten seconds, then breathe out. Repeat the above steps for each puff ordered by your doctor. Wait about 1 minute in between puffs.
10. Replace the cap on your inhaler when finished.



**Weekly Inhaler Cleaning Instructions**

1. Take the canister out of the sleeve and take the cap off the mouthpiece
2. Wash the plastic sleeve through the top and bottom with warm running water for 30 to 60 seconds
3. Shake off excess water from the plastic sleeve and allow to dry completely
4. Look into the mouthpiece to make sure any medicine build-up has been completely washed away. If there is any build-up, repeat cleaning
5. When dry, place the metal medication canister into the plastic sleeve and store with cap in place



Adapted from Ventolin HFA Package Insert

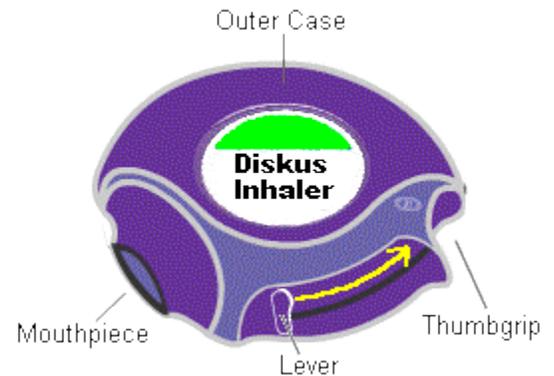
**Spacer Cleaning Instructions**

1. Take the spacer apart.
2. Gently move the parts back and forth in warm water using a mild soap. Never use high-pressure, dish washer or boiling hot water, rubbing alcohol or disinfectant.
3. Rinse the parts well in clean water.
4. Do not dry inside of the spacer with a towel as it will cause static. Instead, let the parts air dry (for example, leave them out overnight).
5. Put the spacer back together.

# USING A DISKUS<sup>®</sup> INHALER<sup>1</sup>

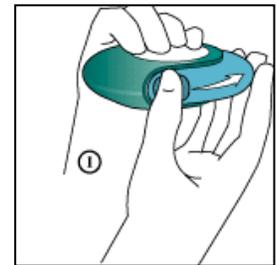
This is your long-term controller medicine. It works every day to keep breathing easy and keep asthma attacks from starting. This medicine keeps swelling from starting and getting bad. It is safe to take every day. When you take it every day, the airways are not so sensitive to the things that start attacks. This means you will have fewer attacks.

To use a DISKUS inhaler, follow the steps below. You can take a dose from the DISKUS with four simple steps: open, click, and inhale. If you have questions, ask your doctor or pharmacist.



## 1. Open

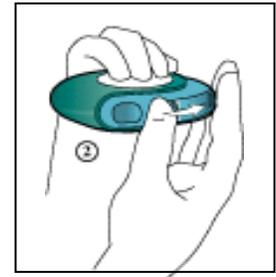
Hold the DISKUS in one hand. Put the thumb of your other hand on the thumb grip. Push your thumb away from you as far as it will go until the mouthpiece appears and snaps into place.



## 2. Click

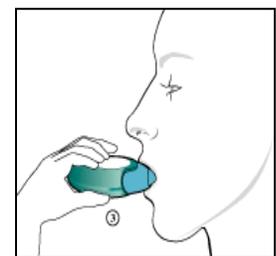
Hold the DISKUS in a level position right-side up. The mouthpiece should be toward you. Slide the lever away from you as far as it will go until it clicks. The DISKUS is now ready to use. Every time the lever is pushed back, a dose is ready to inhale. This is shown by the dose counter. To avoid releasing or wasting doses by mistake:

- Do not close the device.
- Do not play with the lever.
- Do not slide the lever more than once



## 3. Inhale

Breathe out as far as is comfortable. Hold the DISKUS level and away from your mouth. Now, put the mouthpiece to your lips. Take a short/quick breathe through the DISKUS, not through your nose. Then remove the DISKUS from your mouth. Never breathe out into the DISKUS mouthpiece. Hold your breath for about 10 seconds, or for as long as is comfortable. Breathe out slowly.



When you are finished taking the dose, CLOSE the DISKUS by putting your thumb on the thumb grip and sliding it back toward you as far as it will go. The DISKUS will click shut. The lever will return to its original position and reset. The DISKUS is now ready for your next scheduled dose.

## 4. Rinse

Gargle and rinse your mouth out with water after using your DISKUS. This will help prevent dryness and relieve throat irritation that your DISKUS may cause. It will also prevent mouth infections. Do not swallow the water you use to gargle.

<sup>1</sup> Adapted from the demonstration on [www.Advair.com](http://www.Advair.com).

## GOALS FOR GETTING RID OF DUST MITES

Encase pillows, mattress, and box springs in allergen-proof covers. Be sure to cover every pillow on the bed. Remove any pillows that do not have covers. Remember to zip the cover tight.



If sleeping in a bunk bed, the top bunk's mattress and box springs should also be covered with allergen-proof covers.



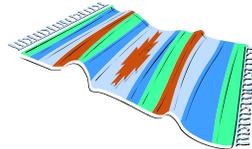
Wash all blankets, sheets, and bedding materials every two weeks in hot water.



Vacuum areas with carpet every week with a vacuum cleaner.

Damp mop areas without carpet.

Remove carpeting if possible and replace with washable area rugs.



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

Damp dust all surfaces in the bedroom weekly.



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

## GOALS FOR GETTING RID OF COCKROACHES

Limit eating to kitchen/  
dining room area.



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



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

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



Contact building owner about cockroach problem.

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



Remove old newspapers  
and clutter daily.

Repair leaks



and dripping faucets.

Take garbage out  
or seal daily.



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



Use traps or call an exterminator.

Be sure the exterminator knows a person  
in the house has asthma.



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

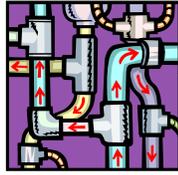


Keep mattress covers  
on your bed.



## GOALS FOR GETTING RID OF MICE AND RATS

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



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

Keep mattress covers on your bed.



Limit eating to kitchen/dining room area.

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



Clean spills on top of stove and counters daily.



Clean food crumbs and spills from floors every day.



Use traps or bait to catch rodents.



Mop all wood or linoleum floors weekly. Damp dust all surfaces.

Contact building owner about rodent problem.

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



Wash or change bedding or towels every 2 weeks.



## GOALS FOR CUTTING DOWN ON YOUR CONTACT WITH PETS

Find a new home for your pet if possible.



Keep your bedroom door shut in order to keep the pet from being in there.



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

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



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



Wash your pet every two weeks.

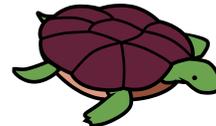
Wash blankets and bed sheets every two weeks in hot water.



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



Choose a pet without fur or feathers.



## GOALS FOR GETTING RID OF MOLD

Use the air conditioner in warm weather; do not use a humidifier.



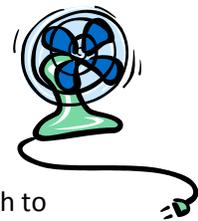
Dry all mops and rags before storing.

Rinse mildewed shower curtain and other bathroom areas with 1 part bleach to 9 parts water once a week.

Hang up wet towels and laundry to dry; do not pile in basements or other damp areas.



**Use a fan or open a door or window** to ventilate the bathroom during showers and baths.



Clean the kitchen with 1 part bleach to 9 parts water once a week when the person with asthma is not at home.

Throw out old newspapers, books, and magazines.



Vent the clothes dryer to the outside.

Limit the number of plants, especially in the bedroom.



Open a window if clothes are hung up to dry indoors.

When boiling water, use a fan or put a lid on the pot.



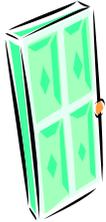
Avoid rooms that have a musty smell and/or appear to have mold, such as the basement.



Use an air-cleaning device with a HEPA filter or a dehumidifier in the home.

## GOALS FOR AVOIDING EXPOSURE TO SMOKE

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



If someone must smoke inside, keep the door to the bedroom closed.

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



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



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



Try to avoid homes or places where people smoke.



Avoid riding in cars where people are smoking.



Don't sit in smoking sections of public places.

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

# Goals for Controlling Other Things That Make Asthma Act Up

## Strong Odors and Sprays

Stay out of the house while it is being painted.



Avoid perfume and perfumed cosmetics.



Do not use room deodorizers.



Do not burn incense.

Use non-perfumed cleaning products if possible.



Reduce strong cooking odors by using a fan.

Avoid air pollution by staying indoors on smoggy days.



## Weather



Wear a scarf over your mouth and nose in the winter.

Dress warmly in the winter or on windy days.



## Colds and Infections



Avoid people with colds or the flu.

Get rest, eat a balanced diet, and exercise regularly.



Talk to your doctor about flu shots.

Do not take over-the-counter cold remedies without asking your doctor.



## Exercising

Work out a medicine plan with your doctor that allows you to exercise without symptoms.



Warm up before exercising and cool down afterwards.

## Wood Smoke

Avoid using wood-burning stoves and kerosene heaters.



## ACKNOWLEDGEMENTS AND THANKS

CHAMPS owes a debt of gratitude to hundreds of people who contributed to the project, especially the [Study Partners](#). We would also like to thank the [Asthma Community Network website](#) for hosting the [CHAMPS Intervention materials](#) and [CHAMPS eLearning videos](#) sections to ensure that the public has permanent access to information about the program.

Finally, a special word of appreciation must be extended to the patients and their families who participated in the research. CHAMPS was made possible because patients with asthma and their families were willing to participate in research programs that enable the medical community to better understand asthma and how to treat it. As a result, patients across the country will have access to better asthma care through the CHAMPS intervention.