

# EXHALE Guide for Healthcare System Executive Leaders

Strategies to Help People with Asthma Achieve Better Health

The Centers for Disease Control and Prevention's (CDC's) National Asthma Control Program created this Guide to assist healthcare system executive leaders in using CDC's EXHALE strategies to help people with asthma achieve better health outcomes.



- Is a set of six strategies that each contribute to better asthma control.
- Can help both children and adults with asthma.
- Can have the greatest impact when multiple strategies are used together.

This Guide explains how healthcare system executive leaders can use EXHALE strategies, individually or in combination, to help people with asthma achieve better health outcomes. Every person with asthma does not necessarily need every strategy.

Healthcare system executive leaders have the power to provide high-quality, coordinated care for people with asthma. Healthcare system executive leaders can engage partners with the shared goal of helping children and adults with asthma.



Centers for Disease  
Control and Prevention  
National Center for  
Environmental Health

# Welcome to EXHALE

CDC's National Asthma Control Program (NACP) and its partners help Americans with asthma achieve better health and improved quality of life. NACP developed EXHALE, a set of six strategies that each contribute to better asthma control.

## EXHALE strategies can improve health

EXHALE is evidence-based and can be cost-effective.

Each EXHALE strategy can reduce hospitalizations and emergency department (ED) visits for asthma.



Healthcare system executive leaders can use EXHALE to help children and adults with asthma achieve better health

## What are the EXHALE strategies?



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X  
H  
A  
L  
E

**Education**  
on asthma self-management

**X-tinguishing**  
smoking and exposure to secondhand smoke

**Home**  
visits for trigger reduction and asthma self-management education

**Achievement**  
of guidelines-based medical management

**Linkages**  
and coordination of care across settings

**Environmental**  
policies or best practices to reduce asthma triggers from indoor, outdoor, or occupational sources

# The Role of Healthcare System Executive Leaders

Managing a chronic condition like asthma can be affected by educational, environmental, behavioral, and social factors. Each person with asthma has a unique set of triggers that can cause them to experience symptoms.

Healthcare system executive leaders can guide employees and patients to follow best practices to help people with asthma. Healthcare system executive leaders can help reduce the morbidity and mortality of asthma by using the EXHALE strategies.

This Guide will explain how EXHALE-related interventions can help healthcare system executive leaders improve the health of people with asthma. Also, this Guide has some information about medical billing codes relevant to EXHALE.



## Asthma is common, costly, and controllable

- About 25 million Americans have asthma (1 in 13 Americans).<sup>1</sup>
- About 1.7 million ED visits and 189,000 hospitalizations are caused by asthma each year.<sup>1</sup>
- U.S. costs for asthma are over \$82 billion annually.<sup>2</sup>

ED visits, hospitalizations, and healthcare costs for asthma can be reduced with asthma control. EXHALE can help.

<sup>1</sup>CDC, Most Recent Asthma Data.  
[https://www.cdc.gov/asthma/most\\_recent\\_data.htm](https://www.cdc.gov/asthma/most_recent_data.htm).

<sup>2</sup>Nurmagambetov T, et al. "State-level medical and absenteeism cost of asthma in the United States." J Asthma. 2017.

# Table of Contents

<b>How EXHALE Can Help Healthcare System Executive Leaders.....</b>	<b>5</b>
<b>Examples of How Healthcare System Executive Leaders Can Use EXHALE.....</b>	<b>6</b>
<b>What EXHALE in Action Can Look Like: Selected Examples.....</b>	<b>9</b>
<b>How Program Evaluation Can Help with EXHALE.....</b>	<b>10</b>
<b>Selected Resources Related to EXHALE.....</b>	<b>11</b>
<b>Appendix 1: Selected Information About Education on Asthma Self-Management.....</b>	<b>13</b>
<b>Appendix 2: Selected Information About Home Visits for Trigger Reduction and Asthma Self-Management Education.....</b>	<b>16</b>
<b>Appendix 3: Selected Information About Achievement of Guidelines-Based Medical Management.....</b>	<b>17</b>

## Other EXHALE Guides are available for:

- Healthcare professionals.
- Managed care leaders and staff.
- Medicaid and Children's Health Insurance Program leaders.
- Public health professionals.
- People with asthma, their families, and their caregivers.
- Schools.

These Guides are available at:  
<https://www.cdc.gov/asthma/exhale/>

# How EXHALE Can Help Healthcare System Executive Leaders

Healthcare system executive leaders have an important role in improving the health of people with asthma. EXHALE can help.

## How can EXHALE improve healthcare quality?

- **Reduce hospitalizations and ED visits:** Each EXHALE strategy can reduce asthma-related hospitalizations and ED visits.
- **Improve asthma medication adherence:** Each EXHALE strategy has increased controller medication use and decreased rescue medication use, except for the strategy [Environmental policies or best practices to reduce asthma triggers from indoor, outdoor, or occupational sources](#).

***Using multiple EXHALE strategies together in every community can achieve the greatest impact.***

## How can EXHALE be used if resources are limited?

- **Analyzing claims or electronic health record (EHR) data can help focus resources** by identifying people who can benefit from EXHALE. Examples are provided throughout this document.
- **Not every person with asthma will need every EXHALE strategy.** More resource-intensive services (such as home visits) can focus on people at higher risk of asthma attacks.
- Some medical billing codes have been used to support the delivery of EXHALE-related services. See [Appendix 1](#) and [Appendix 2](#) for more information.

## Public health asthma control programs can be partners in using EXHALE

Some state, territorial, and local health departments have had asthma control programs funded by CDC's National Asthma Control Program. These programs can support healthcare system executive leaders. For example, these asthma control programs might be able to:

- Provide information on how asthma affects a state or community, how EXHALE can help a particular state or community (for example, impact on health or healthcare costs), and how EXHALE-related activities can be carried out.
- Connect people with asthma to existing EXHALE-related programs, such as AS-ME or home visits for asthma.
- Convene partners (such as from healthcare, schools, or housing) to work together to help people with asthma.

Contact information for some state, territorial, and local asthma control programs in health departments is available at <https://www.cdc.gov/asthma/contacts>.

Health department programs and services vary. You can contact your state, territorial, or local health department to learn more about potential partnership opportunities to help people with asthma.

# Examples of How Healthcare System Executive Leaders Can Use EXHALE

## Education on asthma self-management

Asthma self-management education (AS-ME) includes educating patients with asthma and their families about how to use asthma medications correctly and how to reduce exposures to asthma triggers (such as cockroaches and mold).

Healthcare system executive leaders can analyze claims or EHR data to identify patients who can benefit from AS-ME (such as patients with frequent rescue medication refills, ED visits, or hospitalizations for asthma) and:

- Provide AS-ME through trained internal staff (such as nurses, respiratory therapists, certified asthma educators, and community health workers).
- Encourage referrals for patients with asthma, their families, and their caregivers to existing AS-ME programs.

For more information about these examples, please see [Appendix 1](#).



## X-tinguishing smoking and exposure to secondhand smoke

Cigarette smoke can trigger asthma attacks that require hospital or ED care. About 20% of U.S. adults with asthma smoke cigarettes.<sup>1</sup>

Healthcare system executive leaders can:

- Conduct quality improvement activities to better identify and treat patients with asthma, family members, and caregivers who use tobacco—the [Million Hearts® Tobacco Cessation Change Package](#) can inform these efforts.
- Provide [guideline](#)-based cessation counseling (individual, group, or telephone-based) and cessation medications approved by the U.S. Food and Drug Administration to patients with asthma, family members, and caregivers who use tobacco.
- Connect patients with asthma, family members, and caregivers who use tobacco to community tobacco cessation services, including state quitlines, for more intensive assistance (English: 1-800-QUIT-NOW or 1-800-784-8669; Spanish: 1-855-DEJELO-YA or 1-855-335-3569; Mandarin and Cantonese: 1-800-838-8917; Korean: 1-800-556-5564; Vietnamese: 1-800-778-8440) – these community services complement and support clinical care.
- Ensure that employees have access to comprehensive tobacco cessation benefits in their employer-sponsored health insurance plans, and raise awareness of these benefits among employees with asthma and their families.
- Encourage smokefree policies in hospital and clinic buildings, as well as on hospital and clinic property. Smokefree policies can support tobacco cessation and reduce exposure to secondhand smoke. More information is available in the section [Environmental policies or best practices to reduce asthma triggers from indoor, outdoor, or occupational sources](#).

<sup>1</sup>CDC, Percentage of People with Asthma who Smoke. [https://www.cdc.gov/asthma/asthma\\_stats/people\\_who\\_smoke.htm](https://www.cdc.gov/asthma/asthma_stats/people_who_smoke.htm).

## Examples of How Healthcare System Executive Leaders Can Use EXHALE (continued)

### H Home visits for trigger reduction and asthma self-management education

Home visit programs can serve as care management programs for patients at high risk for asthma attacks. Home visit staff can assess homes for triggers of asthma attacks (such as pests and mold), as well as provide AS-ME to reduce asthma triggers and improve medication adherence.

Healthcare system executive leaders can analyze claims or EHR data to identify patients who can benefit from home visits for asthma (such as patients with frequent ED visits or hospitalizations for asthma) and:

- Encourage referrals for patients with asthma, their families, and their caregivers to existing home visit programs. Some health departments have asthma control programs that can provide information on available home visit programs for asthma. Contact information for selected state, territorial, and local asthma control programs in health departments is available at <https://www.cdc.gov/asthma/contacts>.
- Provide home visits through trained internal staff, using the [Home Characteristics and Asthma Triggers Checklist for Home Visitors \(English version\)](#) created by CDC, U.S. Environmental Protection Agency, and U.S. Department of Housing and Urban Development (Spanish version [here](#); standardized home visit training in English [here](#)). For information about reimbursement of home visits for asthma, please see [Appendix 2](#).

### A Achievement of guidelines-based medical management

Guidelines-recommended asthma medications can prevent hospitalizations and ED visits for asthma, but often these medications are not prescribed or taken appropriately.

Healthcare system executive leaders can:

- Provide training to staff in delivering [guidelines-based](#) medical management of asthma. Examples of available online trainings are provided in [Appendix 3](#).
- Use decision-support tools (such as treatment algorithms, system reminders and pocket-sized guidelines summaries) and shared decision-making (in which healthcare professionals work with patients to decide on treatment) when caring for patients with asthma.
- Participate in quality improvement activities to improve care for patients with asthma. Many health departments have asthma programs that can provide information on existing quality improvement activities for asthma; for asthma program contact information, visit <https://www.cdc.gov/asthma/contacts>.



## Examples of How Healthcare System Executive Leaders Can Use EXHALE (continued)

### Linkages and coordination of care across settings

Coordinated care includes linking patients to needed healthcare and social services. Numerous healthcare systems have helped patients with asthma and reduced healthcare costs by using trained staff (such as case managers and community health workers) or contracts with community organizations to coordinate care for patients with asthma.

Healthcare system executive leaders can:

- Develop or strengthen partnerships with health departments, schools, and healthcare systems to facilitate coordinated care for patients with asthma and build synergy.
- Use a patient-centered medical home model (which prioritizes coordinated care) to deliver primary care.
- Improve communication and coordination with local schools about caring for children with asthma (for example, by creating and sharing asthma action plans).
- Encourage referrals for patients with asthma, their families, and their caregivers to local support services. For example, [home weatherization assistance programs](#) can provide loans or grants to low-income residents to repair or improve their homes, which can reduce asthma triggers in their homes such as mold and pests (more information is available [here](#)).

### E nvironmental policies or best practices to reduce asthma triggers from indoor, outdoor, or occupational sources

Healthcare system executive leaders can inform partners and community leaders about successful policies or practices that help patients with asthma, including:

- [Home weatherization assistance programs](#) that provide loans or grants to low-income residents to repair or improve their homes, which can reduce asthma triggers in their homes (such as mold and pests).
- Smokefree policies, including:
  - Comprehensive smokefree policies that prohibit smoking in all indoor spaces of workplaces, restaurants, bars, and public and private multi-unit housing (including apartment buildings). Additionally, healthcare system executive leaders can adopt, implement, and enforce comprehensive smokefree policies that prohibit use of all tobacco products in hospital and clinic buildings, as well as on hospital and clinic property. An example policy for a healthcare facility can be found [here](#).
  - Smokefree rules that prohibit smoking in homes and vehicles.
- Modifying older diesel engines of school buses to run more cleanly to reduce air pollution.
- Eliminating, when possible, or reducing exposure to asthma triggers in the workplace.



# What EXHALE in Action Can Look Like: Selected Examples from Healthcare Systems

Here are examples of EXHALE-related activities carried out by healthcare systems:

## Example from Indiana

Parkview Health is a not-for-profit regional health system consisting of seven hospitals, multiple specialty clinics, and physicians' offices in northeast Indiana. Parkview Health partnered with the Indiana State Department of Health's Chronic Respiratory Disease Section to create the ED Asthma Call Back Program. Here are some features of this program:

- A registered nurse or registered respiratory therapist contacts (via phone or email) patients with asthma who visit Parkview Health's ED within 7–14 days of the visit.
- These staff provide various services, including discussing the status of asthma control, assessing whether patients can afford prescribed asthma medications, offering home visits, linking patients to primary care physicians and patient-centered medical homes, encouraging patients to make and keep regular medical appointments, and providing AS-ME and mitigation resources as needed.
- This program has effectively reduced asthma-related ED visits and missed school and work days.
- Return on investment is more than \$1 per \$1 spent.
- Collaboration between the local healthcare system, local school districts, and the local and state health department helped this program succeed.

More information about this healthcare system's program is available [here](#).



## Example from Ohio

Cincinnati Children's Hospital Medical Center (CCHMC) launched the Asthma Improvement Collaborative, which conducted inpatient, outpatient, and community-related quality improvement activities during 2010–2015.

These activities included:

- Up to 5 in-home nurse visits to children hospitalized for asthma. These visits included education on medication and trigger avoidance, ensuring asthma action plans and prescribed medications in the home, reinforcement of proper device use, and communication with primary care providers.
- Clinical decision support embedded in the electronic medical record that supported consultation with pulmonary or allergy specialists if the asthma diagnosis was in question, if symptoms were hard to treat, or for questions about optimal management.
- Outpatient care coordination for children with more than 1 asthma-related hospitalization or more than 2 asthma-related ED visits in the past 12 months.
- Partnerships with Medicaid managed care organizations to support care transitions and leverage resources (such as medical equipment and transportation).
- Partnership with Cincinnati public schools to ensure students had completed asthma action plans on file at school.

More information about this healthcare system's activities is available [here](#).

# How Program Evaluation Can Help with EXHALE

Program evaluation can show how well EXHALE-related efforts are helping people with asthma and how these efforts can be improved. Healthcare system executive leaders might be asked to participate in program evaluation conducted by the health department, in addition to any systematic evaluation processes led by healthcare system staff.

## Examples of questions that healthcare system executive leaders can use for program evaluation include:

- Are staff being appropriately trained in delivering guidelines-based medical management of asthma?
- Are people with asthma receiving the AS-ME training and referrals they need to reduce asthma attacks?
- Are quality improvement activities resulting in meaningful and sustained changes?
- Are asthma services coordinated between the healthcare system, schools, the health department, and other organizations or service providers in the community? What gaps exist?

Evaluation is a learning process that can be integrated into routine practices. Good evaluations are systematic, follow a standard framework (such as the [CDC Framework for Program Evaluation in Public Health](#)), and involve the people who are working with or served by the program. More information and resources on program evaluation can be found at [https://www.cdc.gov/asthma/program\\_eval/default.htm](https://www.cdc.gov/asthma/program_eval/default.htm).

## EXHALE can address social determinants of health

Multiple EXHALE strategies can improve conditions in the places where people live, work, learn, play, and spend time.

For example:

- Strategies addressing asthma triggers (such as [Home visits for trigger reduction and asthma self-management education](#) and [Environmental policies or best practices to reduce asthma triggers from indoor, outdoor, or occupational sources](#)) can improve conditions in homes, schools, workplaces, and other settings.
- The strategy [Linkages and coordination of care across settings](#) includes connecting people with asthma to local support services that can improve housing conditions and thereby reduce asthma triggers, such as [home weatherization assistance programs](#).



# Selected Resources Related to EXHALE

## Resources related to multiple EXHALE strategies:

- CDC's [EXHALE: A Technical Package to Control Asthma \(full document\)](#).
- CDC's [6|18 Initiative: Control Asthma](#), which describes how CDC has worked with healthcare partners to improve health and control healthcare costs among people with asthma.
- CDC's [Tools for Asthma Control](#), which includes printable, electronic, and computer-based asthma action plans.
- Agency for Healthcare Research and Quality's [Designing and Delivering Whole-Person Transitional Care](#), which includes tools to reduce Medicaid readmissions.
- American Lung Association's [Create an Asthma Action Plan](#), which includes English and Spanish asthma action plans.
- American Lung Association's [Asthma Guidelines-Based Care Coverage Project](#), which includes data on Medicaid coverage of asthma care [by jurisdiction](#) for all 50 states, District of Columbia (DC), and Puerto Rico (PR).

## Education on asthma self-management

- American Lung Association's [Medicaid Coverage of Asthma Self-Management Education: A Ten-State Analysis of Services, Providers, and Settings](#).
- Agency for Healthcare Research and Quality's [Technical Brief on AS-ME packages](#), which describes the features of and evidence for some available AS-ME trainings.

## X-tinguishing smoking and exposure to secondhand smoke

- CDC's [Smoking & Tobacco Use: Healthcare Provider Resources](#) provides resources intended to help providers integrate cessation into their practice and ensure that patients have the right tools to begin their quit journeys.
- CDC's [Smoking & Tobacco Use: Education and Training](#) includes training resources offering evidence-based information and practical advice to help patients quit tobacco.
- CDC's [Smoking & Tobacco Use: Quitlines and Other Cessation Support Resources](#) features facts and FAQs on quitlines and other cessation support resources, such as apps or texting programs.
- U.S. Preventive Services Task Force's [Tobacco Smoking Cessation in Adults, Including Pregnant Women: Behavioral and Pharmacotherapy Interventions](#).
- U.S. Public Health Service's [Clinical Practice Guideline for Treating Tobacco Use and Dependence: 2008 Update](#).

\* Smokefree policies can support tobacco cessation and reduce exposure to secondhand smoke. Related resources are available below, under [Environmental policies or best practices to reduce asthma triggers from indoor, outdoor, or occupational sources](#).

## Selected Resources Related to EXHALE (continued)

### H Home visits for trigger reduction and asthma self-management education

- [Home Characteristics and Asthma Triggers Checklist for Home Visitors \(English version\)](#) created by the CDC, the U.S. Environmental Protection Agency, and the U.S. Department of Housing and Urban Development (Spanish version [here](#); standardized home visit training in English [here](#)).
- CDC's [Strategies for Addressing Asthma in Homes](#), which includes core elements of home visits for asthma.
- National Center for Healthy Housing's [e-Learning: Building Systems to Sustain Home-Based Asthma Services](#), which includes free trainings and tools to build sustainable systems for home visits for asthma (registration required).

### Achievement of guidelines-based medical management

- National Asthma Education and Prevention Program's [Guidelines for the Diagnosis and Management of Asthma \(EPR-3\)](#).
- Center for Health Care Strategies' [Return on Investment Forecasting Calculator for Quality Improvement Initiatives](#).

### L inkages and coordination of care across settings

- National Association of State Boards of Education's [How Schools Work and How to Work with Schools](#), which includes practical steps for working with schools.
- American Academy of Pediatrics' [National Resource Center for Patient/Family-Centered Medical Home](#), which includes state-specific information on medical home initiatives and partners.
- Center for Health Care Strategies' [Return on Investment Forecasting Calculator for Health Homes and Medical Homes](#).
- [Neighborhood Navigator](#), an interactive tool that identifies community resources by zip code. Neighborhood Navigator is available through the American Academy of Family Physicians' The EveryONE Project®.

### E nvironmental policies or best practices to reduce asthma triggers from indoor, outdoor, or occupational sources

- CDC's [Health Impact in 5 Years Initiative](#), which includes [home weatherization assistance programs](#), [clean diesel bus fleets](#), and [comprehensive smokefree policies](#).
- CDC's National Institute for Occupational Safety and Health website on [work-related asthma](#).
- American Nonsmokers' Rights Foundation's [100% Smokefree U.S. Hospital Campuses and Psychiatric Facilities](#), which includes lists of smokefree hospital campuses by state.
- The University of California, San Francisco Smoking Cessation Leadership Center's [Destination Tobacco Free: A Practical Tool for Hospitals and Health Systems](#) is a toolkit to help health systems create and implement smokefree policies.
- The University of Colorado Anschutz Medical Campus, School of Medicine, Behavioral Health and Wellness Program's [Dimensions: Tobacco-free Policy Toolkit](#) is a toolkit to help health systems create and implement smokefree policies.

For more information, visit:  
<https://www.cdc.gov/asthma/exhale/>

# Appendix 1: Selected Information About Education on Asthma Self-Management

This appendix includes additional selected information about the examples of how healthcare system executive leaders can use the EXHALE strategy [Education on asthma self-management](#). The information provided in this appendix is organized according to the examples listed earlier in this document:

- Provide asthma self-management education (AS-ME) through trained internal staff (such as nurses, respiratory therapists, certified asthma educators, and community health workers).
- Encourage referrals for patients with asthma, their families, and their caregivers to existing AS-ME programs.
- Investigate and consider using available medical billing codes that can be used for AS-ME.



## Example 1: Provide AS-ME through trained internal staff

The [National Asthma Educator Certification Board](#) is a voluntary testing program used to assess knowledge in asthma education. Certified asthma educators are typically licensed healthcare professionals (such as nurses and respiratory therapists) who obtain this certification, but others (such as community health workers) can also become certified if they have at least 1,000 hours of relevant experience and pass this test.

Guidelines-recommended AS-ME includes personalized asthma action plans for each person with asthma. Asthma action plans can help families, caregivers, schools, and others know and remember how to treat an individual's asthma symptoms according to the doctor's recommendations.

The following websites have examples of asthma action plans that can be personalized:

- CDC's [Tools for Asthma Control](#) includes printable, electronic, and computer-based asthma action plans.
- American Lung Association's [Create an Asthma Action Plan](#) includes English and Spanish asthma action plans.

## Appendix 1: Selected Information About Education on Asthma Self-Management (continued)

### Example 1: Provide AS-ME through trained internal staff (continued)

The following table lists available resources that can help healthcare professionals and others deliver AS-ME:

Examples of Resources That Can Help Healthcare Professionals and Others Deliver AS-ME			
Name (Source)	Intended Audience	Language(s)	How to Access
<a href="#">Asthma Basics (ALA)</a>	School nurses, CHWs, and others who teach adults and children with asthma, their families, and caregivers.	English, Spanish	Go to website (use hyperlink)
<a href="#">Asthma Basics for Children (AAFA)</a>	Healthcare professionals who teach parents and teachers of young children with asthma.	English, Spanish	Go to website (use hyperlink)
<a href="#">Asthma Education for the Community Health Worker (AAE)</a>	CHWs who teach people with asthma and their families.	English	Go to website (use hyperlink)
<a href="#">Breathe Well, Live Well Training for Educators (ALA)</a>	Healthcare professionals, health educators, or CHWs who teach adults with asthma.	English	See note*
<a href="#">Kickin' Asthma (ALA)</a>	School personnel and others who teach children with asthma aged 11–16 years.	English	See note*
<a href="#">Open Airways for Schools (ALA)</a>	School personnel and others who teach children with asthma aged 8–11 years.	English, Spanish	See note*
<a href="#">Wee Breathers (AAFA)</a>	Healthcare professionals who teach parents of young children with asthma.	English, Spanish	Go to website (use hyperlink)
<a href="#">You Can Control Asthma (AAFA)</a>	Healthcare professionals who teach school-age children with asthma and their families.	English, Spanish	Go to website (use hyperlink)

\*Contact the American Lung Association at 1-800-586-4872 to access training and program materials. Kickin' Asthma and Open Airways for Schools are designed to be delivered as group AS-ME.

AAE, Association of Asthma Educators; AAFA, Asthma and Allergy Foundation of America; ALA, American Lung Association; CHW, community health worker.

The information on this page is current as of August 2020. More information on some of these tools and other AS-ME tools is available at the Agency for Healthcare Research and Quality's [Technical Brief on AS-ME packages](#).



## Appendix 1: Selected Information About Education on Asthma Self-Management (continued)

### Example 2: Encourage referrals for patients with asthma, their families, and their caregivers to existing AS-ME programs

Many health departments have asthma programs that can provide information on existing AS-ME programs; for asthma program contact information, visit <https://www.cdc.gov/asthma/contacts>.

Also, the following table lists online AS-ME available to patients with asthma, their families, and their caregivers:

<b>Examples of Online AS-ME for Patients with Asthma, Their Families, and Their Caregivers</b>			
<b>Name (Source)</b>	<b>Intended Audience</b>	<b>Language(s)</b>	<b>How to Access</b>
<a href="#">Asthma Basics (ALA)</a>	Adults and children with asthma, their families, and their caregivers.	English, Spanish	Go to website (use hyperlink)
<a href="#">Asthma Care for Adults (AAFA)</a>	Adults with asthma and their caregivers.	English, Spanish	Go to website (use hyperlink)

AAFA, Asthma and Allergy Foundation of America; ALA, American Lung Association.

### Example 3: Investigate and consider available medical billing codes that can be used for AS-ME

The following table lists medical billing codes that can be used to receive payment for delivering AS-ME. Health insurance plans (including state Medicaid agencies) vary in which codes they reimburse. Some health insurance plans will reimburse one or more of these codes.

<b>AS-ME: Medical Billing Code Examples</b>	
<b>Code</b>	<b>Brief Description</b>
94664 (CPT)	Demonstration and/or evaluation of patient utilization of an aerosol generator, nebulizer, metered dose inhaler, or intermittent positive pressure breathing device.
98960 (CPT)	Education and training for patient self-management.
99401–99404 (CPT)	Preventive medicine counseling (individual).
99411–99412 (CPT)	Preventive medicine counseling (group).
99605–99607 (CPT)	Medication therapy management service(s) provided by a pharmacist.
S9441 (HCPCS)	Asthma education.

CPT, Current Procedural Terminology code.

HCPCS, Healthcare Common Procedure Coding System code.

Documents describing use of medical billing codes for AS-ME have been identified from [California](#) and [Missouri](#). Links to medical billing codes for tobacco screening and cessation can be found on page 12 of this [document](#).

Notes about this page:

The information on this page is current as of August 2020. More information on some of these tools and other AS-ME tools is available at the Agency for Healthcare Research and Quality's [Technical Brief on AS-ME packages](#).

# Appendix 2: Selected Information About Home Visits for Trigger Reduction and Asthma Self-Management Education

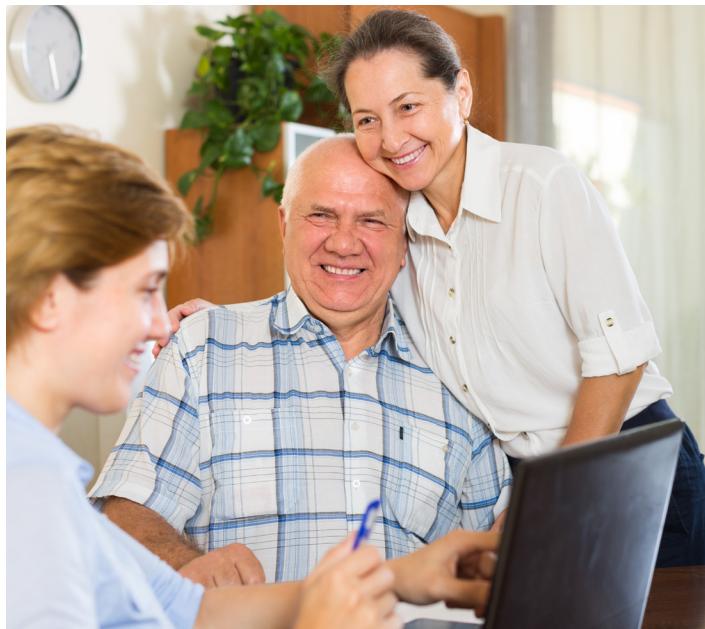
The following table lists medical billing codes that can be used to receive payment for delivering home visits for asthma. Health insurance plans (including state Medicaid agencies) vary in which codes they reimburse. Some health insurance plans reimburse one or more of these codes.

Home Visits for Asthma: Medical Billing Code Examples	
Code	Brief Description
95199 (CPT)	Unlisted allergy/clinical immunologic service or procedure.
G0299 (HCPCS)	Direct skilled nursing services in the home health or hospice setting.
S0315 (HCPCS)	Disease management program, initial assessment, and initiation of program.
S0316 (HCPCS)	Disease management program, follow-up/reassessment.
S8097 (HCPCS)	Asthma kit, including but not limited to portable peak expiratory flow meter, instructional video, brochure, and/or spacer.
S9441 (HCPCS)	Asthma education.
T1017 (HCPCS)	Targeted case management.
T1028 (HCPCS)	Home environment assessment.

CPT, Current Procedural Terminology code; HCPCS, Healthcare Common Procedure Coding System code.

Reimbursement for these codes is not guaranteed because health insurance plans (including state Medicaid agencies) vary in which codes they reimburse. Some health insurance plans reimburse one or more of these codes.

Documents describing use of medical billing codes for home visits have been identified from [Michigan](#) and [Missouri](#). Links to medical billing codes for tobacco screening and cessation can be found on page 12 of this [document](#).



# Appendix 3: Selected Information About Achievement of Guidelines-Based Medical Management

Quality improvement tools and resources include:

- American Academy of Family Physicians' [METRIC® Module: Asthma](#).
- American Academy of Pediatrics' [Asthma: Quality Improvement Resources & Tools](#).
- [Edward KS, "Asthma Days: An Approach to Planned Asthma Care," Family Practice Management \(2004\)](#).

The following table lists trainings available to healthcare professionals and others on guidelines-based medical management:

Examples of Training Opportunities for Healthcare Professionals and Others on Guidelines-Based Medical Management	
Name (Source)	Notes
<a href="#">Asthma Educator Institute (ALA)</a>	Continuing education credits vary by location.
<a href="#">Asthma Management and Education Online (AAFA)</a>	Nurses and respiratory therapists can earn 8.75 contact hours.
<a href="#">Creating Asthma-friendly Environments and Promoting Access to Guidelines-based Care for Children with Asthma (NASN, NEEF)</a>	Nurses can earn 3.0 contact hours.
<a href="#">Environmental Management of Pediatric Asthma: Guidelines for Health Care Providers (NEEF)</a>	Continuing education credits are not available.
<a href="#">Environmental Triggers of Asthma (ATSDR)</a>	Physicians can earn 1.75 continuing education credits; nurses can earn 1.75 contact hours; health educators can earn 1.5 contact hours.
<a href="#">EQIPP: Asthma (AAP)</a>	Physicians can earn 54 continuing education credits; nurses can earn 54 contact hours.
<a href="#">Physician Asthma Care Education (NIH)</a>	Website contains materials to deliver this curriculum to physicians.
<a href="#">Putting It Into Practice: Pediatric Environmental Health Training Resource (CEHN)</a>	Continuing education credits are not available.

AAFA, Asthma and Allergy Foundation of America; ALA, American Lung Association; AAP, American Academy of Pediatrics; ATSDR, Agency for Toxic Substances and Disease Registry; CEHN, Children's Environmental Health Network; EQIPP, Education in Quality Improvement for Pediatric Practice; NASN, National Association of School Nurses; NEEF, National Environmental Education Foundation; NIH, National Institutes of Health.

The information on this page is current as of August 2020.