

Quality Insights Pediatric Asthma Management Practice Module

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Table of Contents

Purpose of Module	3
Introduction	3
What is Asthma?	3
Prevalence: United States and Pennsylvania	4
Pediatric Asthma in United States.....	4
Asthma in Pennsylvania	6
3 A's – Awareness, Assessment & Action	7
Awareness: Asthma Matters	7
Limitations of Activity	7
Social Determinants Matter	7
Assessment.....	9
Is Asthma Under Control?	9
Signs of Well-Controlled Asthma	10
Action: Asthma Control is the Goal	10
EXHALE	11
Guidelines – Asthma Diagnosis and Care.....	12
What Providers Can Do	13
Vaccinations	13
Flu Vaccine:	13
Pediatric COVID-19 Vaccination Resources.....	13
Asthma Action Plan.....	14
Home Visit Trigger Assessment	15
Resources	15
Indoor Asthma Triggers.....	16
Children's Hospital of Philadelphia's Home Visitor Program	16
Partners in Care	16
School Districts	16
Asthma Self-Management Education Classes	17
Tobacco Cessation Programs	18
The Pressure is Off: Partner with Quality Insights	19
Appendix	20

Purpose of Module

This module contains a high-level overview of evidence-based pediatric asthma management information. It is designed to support and supplement your current quality improvement efforts.

Sections are organized by the “3 As” – **Awareness, Assessment and Action** – and include many tools and resources that may also be located on the [Quality Insights website](#).

Please Note: Guidelines and recommendations referenced in this module are to be used along with physician/clinician judgment, treatment, and based on individual patient’s unique needs and circumstances.



Introduction

What is Asthma?

- Asthma is a chronic disease of the lungs that causes inflammation and swelling of the airways. This results in narrowing of the airways that carry air from the nose and mouth to the lungs.
- Asthma symptoms include trouble breathing (shortness of breath), wheezing, coughing, and tightness or pain in the chest.
- Asthma symptoms can be triggered by different things for different people. Allergens, like dust or pet dander, are common triggers. Some people also develop asthma symptoms in response to poor indoor air quality, certain foods or to exercise.
- Without proper management, asthma can result in frequent emergency department or urgent care visits, hospitalizations, and premature death.
- There is no cure for asthma, but appropriate treatment prevents asthma attacks and can help patients have a better quality of life.
- Asthma is one of the most common and costly diseases in the United States.
- Asthma affects adults and children of all ages.

Prevalence: United States and Pennsylvania

Pediatric Asthma in United States

In 1999, the Centers for Disease Control and Prevention (CDC) created the National Asthma Control Program (NACP) to help millions of people with asthma in the U.S. gain control over their asthma. The NACP conducts asthma surveillance and supports 25 states with funds to monitor and focus efforts and resources.



According to the [CDC](#), approximately 6.2 million U.S. children, adolescents, and young adults 21 and under have asthma.

The [U.S. Department of Health and Human Services Office of Minority Health](#) data shows that Blacks are more likely to have asthma than both Whites and Hispanics.

- In 2019, non-Hispanic Black children had a asthma death rate eight times that of non-Hispanic White children.
- In 2017, non-Hispanic Black children were five times more likely to be admitted to the hospital for asthma as compared to non-Hispanic White children.
- While all of the causes of asthma remain unclear, children exposed to secondhand tobacco smoke are at increased risk for acute lower respiratory tract infections, such as bronchitis. Children living below or near the poverty level are more likely to have high levels of blood cotinine, a breakdown product of nicotine, than children living in higher income families.

Asthma prevalence percentage, children ages 18 and under, 2018			
	Non-Hispanic Black	Non-Hispanic White	Non-Hispanic Black / Non-Hispanic White
Boys	16.8	5.0	3.4
Girls	11.7	6.2	1.9
Both Sexes	14.3	5.6	2.6

Source: CDC 2021. National Health Interview Survey Data 2018. Table 4-1.
<https://www.cdc.gov/asthma/nhis/2018/table4-1.htm>

Most Recent National Asthma Data from the CDC

In 2020, the [asthma prevalence](#) for females and males under 18 was relatively the same. The prevalence for males was 5.7 percent (2,107,190) and it was slightly higher for females at 6 percent (2,119,469). In adults over 18, asthma prevalence is higher in females.

The below chart represents those, by adults/children and race/ethnicity that answered "yes" to the questions: "Have you EVER been told by a doctor or other health professional that you had asthma?" and "Do you still have asthma?"

[Current Asthma¹ Prevalence by Race and Ethnicity \(2018–2020\)](#)

Race and Ethnicity	Total ²		Children		Adults	
	Weighted Number With Current Asthma ¹	Percent (SE)	Weighted Number With Current Asthma ¹	Percent (SE)	Weighted Number With Current Asthma ¹	Percent (SE)
White NH	15,286,442	7.6 (0.14)	2,062,254	5.5 (0.26)	13,224,188	8.1 (0.16)
Black NH	4,025,268	10.8 (0.41)	1,151,712	12.3 (0.83)	2,873,555	10.3 (0.47)
AI/AN NH ³	417,161	10.8 (1.09)	88,995	9.3 (2.10)	328,166	11.3 (1.23)
Asian NH	632,757	3.5 (0.34)	119,662	3.5 (0.54)	513,095	3.5 (0.39)
Multiple NH ⁴	735,992	11.5 (0.89)	264,353	8.8 (0.94)	471,639	13.8 (1.40)
Hispanic	3,770,233	6.7 (0.29)	1,263,649	6.7 (0.44)	2,506,583	6.7 (0.34)
Mexican ⁵	1,829,044	5.5 (0.34)	675,014	5.7 (0.52)	1,154,030	5.3 (0.39)
Other Hispanic ⁵	1,916,020	8.7 (0.50)	583,337	8.7 (0.81)	1,332,683	8.8 (0.61)

Abbreviations: NH = Non-Hispanic, AI/AN = American Indian/ Alaska Native, SE = Standard Error

¹Persons who answered "yes" to the questions: "Have you EVER been told by a doctor or other health professional that you had asthma?" and "Do you still have asthma?"

²Total may not equal to the sum of children and adults due to rounding and varying missing values.

³NH AI/AN only and NH AI/AN with any other group combined for 2019 and 2020.

⁴Subcategory includes "Other single and multiple races" for 2019 and 2020.

⁵As a subset of Hispanic.

Source: 2018–2020 National Health Interview Survey (NHIS).

Asthma in Pennsylvania

One in eight children had lifetime asthma in 2019, with a higher prevalence in boys (one in seven) than in girls (one in nine). By race and ethnicity, White, non-Hispanic children had the lowest prevalence (one in nine). Black non-Hispanic children was one in six as was Hispanic children. Older children in PA are more predominantly affected by asthma. More data can be found on the [PA Department of Health \(DOH\) Asthma Prevalence Fact Sheet](#) or on the [PA Asthma Surveillance System website](#).



[Asthma and Allergy Foundation of America](#) - In 2021, there were five Asthma Capitals in PA, including:

- #1 Allentown
- #7 Philadelphia
- #39 Harrisburg
- #40 Scranton
- #53 Pittsburgh



PA DOH, through a collaborative agreement with the CDC, is working “to improve the reach, quality, effectiveness, and sustainability of asthma control services and to reduce asthma morbidity, mortality and disparities by implementing evidence-based strategies across multiple sectors.” Through the CDC initiative and goals of [CDC Controlling Childhood Asthma and Reducing Emergencies \(CCARE\)](#), PA DOH and partners throughout the state have engaged in the PA Asthma Control Program and PA Asthma Partnership (PAP).

Interested in joining the PAP? Please contact RA-DHPAAsthma@pa.gov

The CDC objective is to prevent 500,000 Emergency Department visits and hospitalizations due to asthma by August 31, 2024!



3 A's – Awareness, Assessment & Action

Awareness: Asthma Matters



[Asthma](#) is one of the most common lifelong diseases. It is a disease that affects the lungs causing episodes of wheezing, breathlessness, chest tightness and coughing. Deaths from asthma are thought to be preventable particularly among children and young adults. Often it is not known what causes asthma nor how to cure it.

In 1999, the Centers for Disease Control and Prevention (CDC) created the [National Asthma Control Program](#) (NACP) to help people with asthma gain control of their disease.

The program goals included reducing the number of:

- Deaths
- Hospitalizations
- Emergency department visits
- School or work days missed

The aim of the NACP is to ensure availability and access to guidelines-based medical management and pharmacology of all people with asthma, improved quality of asthma care, improved asthma management in schools and improved air quality through air pollution policies.

Controlling Childhood Asthma and Reducing Emergencies (CCARE), CDC's new objective seeks to prevent 500,000 emergency department visits and hospitalizations by August 31, 2024.

Social Determinants Matter

These guiding principles establish a vision to act collectively to address the burden of asthma in Pennsylvania. The below is an excerpt from the [PA DOH Strategic Asthma Plan](#).

1. **Equity:** Achieve health equity by addressing the social determinants of health, dismantling systems of oppression, expanding activities into communities of greatest need be they rural or urban, and partnering with these communities to reduce health disparities. The ACP is committed to approaching program development and implementation with a health equity lens.

2. **Collaboration and Partnerships:** Identify potential linkages and act upon opportunities to cooperate and partner responsibly to achieve greater impacts than can occur in isolation. All health care and public health partners understand, accept, and fulfill their roles and responsibilities.
3. **Access to Guidelines Based Care and Community Support Services:** Guidelines-based asthma care, Asthma Self-Management Education, and appropriate support services are available, accessible, and affordable.
4. **Patient-centered Approaches:** The health care system is designed to recognize and value the needs of individuals, their caregivers and their families, to provide coordinated care and support.
5. **Data Driven:** The use of national, state, local, and program data for asthma surveillance and to guide implementation, evaluation, and quality improvement activities to achieve ACP goals and improve health outcomes.
6. **Social Determinants of Health (SDOH) (Figure 1):** The social circumstances in which people live, learn, work, and play can have a greater impact on health outcomes than health related factors such as health care coverage and access to care. The ACP will leverage new and existing partnerships to address the SDOH leading to asthma disparities in Pennsylvania.

Figure 1: Social Determinants of Health



Source: [National Academy of Medicine](#)

Assessment

To classify asthma severity, the provider will consider how often signs and symptoms of asthma exist and how severe they are. Providers will also consider the results of the physical exam and diagnostic tests.

Determining asthma severity helps the provider choose the best treatment. Asthma severity often changes over time, requiring treatment adjustments. Download the [Asthma: Take Action. Take Control – Asthma Health Disparities](#) fact sheet from the Chest Foundation and share it with patients.

Asthma is classified into the following four general categories:

Asthma Classification	Signs & Symptoms
Mild intermittent	Mild symptoms up to two days a week and up to two nights a month
Mild persistent	Symptoms more than twice a week, but no more than once in a single day
Moderate persistent	Symptoms once a day and more than one night a week
Severe persistent	Symptoms throughout the day on most days and frequently at night

According to the [Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma](#), severity and control are defined as follows:

- **Severity:** The intrinsic intensity of the disease process. Severity is most easily and directly measured in a patient who is not receiving long-term control therapy. Severity can also be measured, once asthma control is achieved, by the step of care (i.e., the amount of medication) required to maintain control.
- **Control:** The degree to which the manifestations of asthma are minimized by therapeutic intervention and the goals of therapy are met.

[Childhood Asthma Control Test \(C-ACT\)](#): This test can help patients and their providers determine whether asthma is being properly controlled.

Is Asthma Under Control?

Rule of Twos- does the patient or caregiver report

1. Does your child:
 - a. Have an asthma control test (ACT) score of less than 20?* ☐ YES ☐ NO
 - b. Cough or wheeze more than two times per week? ☐ YES ☐ NO
 - c. Wake up at night due to coughing more than two times per month? ☐ YES ☐ NO
 - d. Stop playing or exercising due to asthma? ☐ YES ☐ NO

If the answer is YES to any of these questions, the child's asthma may not be under control. Understand the signs and follow these tips to better manage asthma.

*ACT age 4-11 (see [Appendix A](#)), 12 or older (see [Appendix B](#))

2. Assess Reasons for Poor Control

- a. Inhaler technique – Check patient's technique.
- b. Compliance – Ask when and how much medication the patient is taking.
- c. Environment - Ask patient/parent if something in his or her environment has changed.

Signs of Well-Controlled Asthma

- Sleeping well at night without coughing
- Running, playing sports, active in school activities
- Not missing school due to asthma
- Using your rescue inhaler less than 2 times per week for asthma symptoms
- Parents not missing work due to child's asthma
- No hospitalizations for asthma
- No emergency room visits for asthma
- Having an asthma action plan

Action: Asthma Control is the Goal

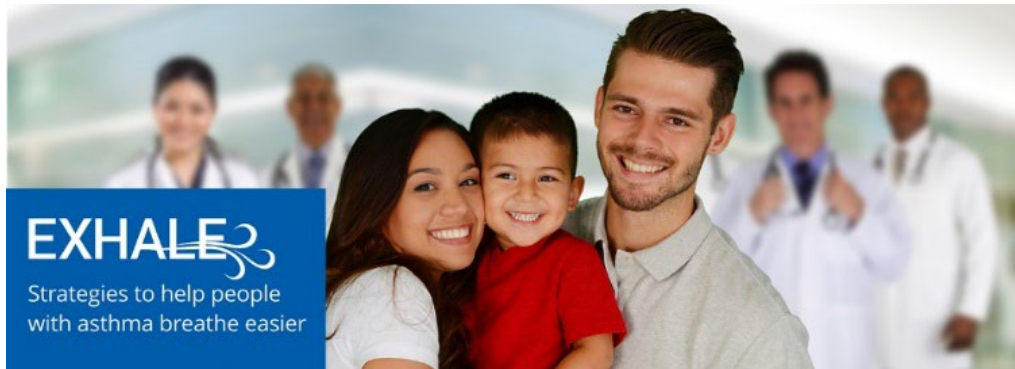
A [July 2020 update](#) from the American Academy of Pediatrics (AAP) states that up to 40 percent of childhood asthma patients have asthma that isn't well controlled due to "medication non-adherence, uncontrolled triggers, comorbid conditions and under-prescribing". The AAP continues that the best asthma treatment "achieves asthma control, preserves lung function and minimizes side effects."

Prevention and long-term control are key to stopping asthma attacks before they start. Treatment usually involves learning to recognize asthma triggers, taking steps to avoid triggers, and tracking breathing to make sure the medications are keeping symptoms under control. In case of an asthma flare, patients may need to use a quick-relief inhaler.

Controlling asthma means the child should be able to:

- Sleep through the night without coughing, wheezing, or having shortness of breath
- Run and play without having asthma symptoms
- Go to school every day





EXHALE

The CDC's [National Asthma Control Program \(NACP\)](#) and its partners help people 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 can have the greatest impact when:

- Multiple EXHALE strategies are used together in every community.
- Health care professionals, health insurance plan administrators, public health professionals, school personnel, patients with asthma, their families, and other community members work together in using EXHALE.

EXHALE stands for:

- [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

EXHALE Resources

[EXHALE Healthcare Professionals Guide](#): This guide is a condensed version of the [technical guide](#) that is designed to help care teams learn more about how to help people with asthma achieve better health.

[EXHALE Guide for Schools](#): School personnel have the power to educate and help coordinate care for students with asthma. Schools can engage partners with the shared goal of helping people with asthma and reduce asthma-related missed school days.

Access a host of other [EXHALE Guides](#), each developed for a specific audience, including:

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

Guidelines – Asthma Diagnosis and Care

[2020 Focused Updates to the Asthma Management Guidelines](#) is the most recent update of the Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma (EPR-3). This update includes a better understanding of asthma as a diagnosis, and that it is not one disease, but more of a syndrome composed of multiple phenotypes.

The six priority topics identified for systematic review were as follows:

1. Fractional exhaled nitric oxide (FeNO) in diagnosis, medication selection, and monitoring of treatment response in asthma
2. Remediation of indoor allergens (e.g., house dust mites/pets) in asthma management
3. Adjustable medication dosing in recurrent wheezing and asthma
4. Long-acting anti-muscarinic agents in asthma management as add-ons to inhaled corticosteroids
5. Immunotherapy and the management of asthma
6. Bronchial thermoplasty (BT) in adult severe asthma



[2020 Focused Updates to the Asthma Management Guidelines:](#)

[Clinician's Guide](#): This Clinician's Guide summarizes the 2020 Focused Updates to the Asthma Management Guidelines: A Report from the National Asthma Education and Prevention Program Coordinating Committee Expert Panel Working Group to help clinicians integrate the new recommendations into clinical care.

[2020 Focused Updates to the Asthma Management Guidelines: At-a-Glance Guide](#) (see [Appendix C](#))

This guide describes a treatment management approach based on recommendations from the 2020 Focused Updates to the Asthma Management Guidelines: A Report from the National Asthma Education and Prevention Program Coordinating Committee Expert Panel Working Group. Step diagrams from the 2007 Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma (EPR-3) were updated with the new recommendations. The diagrams are intended to help clinicians integrate the new recommendations into clinical care, and are meant to assist, and not replace, clinical judgment or decision-making for individual patient management, with input from individuals with asthma about their preferences.

What Providers Can Do

1. Assess asthma severity
2. Assess and monitor asthma control
3. Use inhaled corticosteroids on all persistent asthma patients
4. Use written Asthma Action Plans (AAP)
5. Schedule follow-up appointments
6. Initiate or continue a “Call Us First” initiative that includes contracting with pediatric asthma patients and/or caregivers to call the office for an appointment when:
 - The patient is in the Yellow Zone of their AAP and not responding to treatment
 - For Red Zone recommendations from the provider for at-home treatments, in-office appointment, and Urgent Care or Emergency Room visit, when necessary (24/7)
7. Control environmental exposures

Vaccinations

Flu Vaccine:

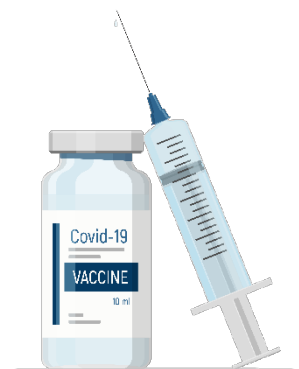
The [CDC](#) recommends the annual flu vaccine for children with asthma as they are at higher risk for developing serious flu complications, even if their asthma is mild or their symptoms are well-controlled by medication.



The recommendation of the Asthma Control Program:

1. Document each patient’s influenza vaccination status, including “Not Administered – Reason” or “Administered Elsewhere”.
2. It is recommended to initiate a Population Health Management Outreach to *ALL* asthma patients every year to facilitate asthma patients in receiving the annual influenza vaccine and an Asthma Action Plan update/review prior to the beginning of the influenza season in early fall.

Pediatric COVID-19 Vaccination Resources



On June 18, 2022, the CDC’s Advisory Committee on Immunization Practices (ACIP) recommended the use of COVID-19 vaccine for patients ages six months to four years (Pfizer-BioNTech) and ages six months to five years (Moderna). [See the CDC statement](#). These recommendations are in line with [FDA’s Emergency Use Authorizations](#) of the Pfizer-BioNTech and Moderna COVID-19 vaccines for this age group.

The following resources are available to help implement the recommendation:

- CDC's [Pediatric COVID-19 Vaccination Operational Planning Guide](#) (updated Thursday, June 2, 2022)
- CDC's [COVID-19 Vaccination for Children website](#)
- CDC's [Interim Clinical Considerations for Use of COVID-19 Vaccines](#) – Check this page for updates
- [Checklist for Pediatric COVID-19 Vaccination](#) for health centers

The recommendation of the Asthma Control Program: Provide COVID-19 vaccinations as it becomes available for all age ranges and document each patient's vaccination status, including "Not Administered – Reason" or "Administered Elsewhere." It is recommended to initiate a Population Health Management Outreach for *ALL* asthma patients eligible for the COVID-19 vaccination, and an Asthma Action Plan update/review.

Asthma Action Plan (see [Appendix D](#))

Everyone with asthma needs his or her own Asthma Action Plan. The recommendation of the Asthma Control Program is to initiate an Asthma Action Plan (AAP), preferably in discrete data fields in the electronic health record (EHR), on every diagnosed asthma patient (including those created by Specialists) so the information is able to be reported and readily available.



It is also recommended to review the AAP with patients and their caregivers; encouraging the caregiver and/or patient take a photo with their smart phone or print and send to the patient portal (if EHR permits) at every asthma or wellness appointment.

Home Visit Trigger Assessment

A key to the reduction in exacerbations of asthma in children is home trigger assessment and reduction.

The American Lung Association has resources to assist people to identify home triggers that could be affecting childhood asthma patients. See [Appendix E](#).

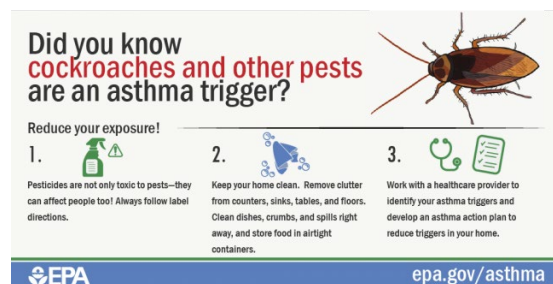
Resources:

- [Removing Asthma Triggers in the Home: Reducing Pet Allergen](#)
- What Are Your Asthma Triggers - (poster available in [English](#) and [Spanish](#))
- What Triggers Your Asthma Worksheets - [Identifying Asthma Triggers in English](#). Also available [here](#) in Spanish, Navajo, and Burmese.



Indoor Asthma Triggers

The [United States Environmental Protection Agency](#) (EPA) has identified that Americans spend up to 90 percent of their time indoors. Asthma triggers include secondhand/thirdhand smoke, dust mites, molds, pests like rodents and cockroaches, pets, outdoor air pollution, chemical irritants and wood smoke.



On the [Publications page](#) there are guides to help children with asthma reduce triggers. Exposures can be identified through a comprehensive asthma home visit program. EPA offers free publications to help children, parents and caregivers better understand the asthma triggers and how to reduce them.

Children's Hospital of Philadelphia's Home Visitor Program

Children's Hospital of Philadelphia [Community Asthma Prevention Program \(CAPP\)](#) supports children with asthma in the Philadelphia region. They operate a Home Visitor Program utilizing Community Health Workers to teach in-home classes and provide families with supplies to reduce asthma triggers in the home.



The CAPP can be reached by calling 215-590-5261 or [online form at CAPP](#).

Partners in Care

School Districts



The care team is expanded to include school nurses, coaches, and teachers when there is a student with asthma.

In order to ensure that a child has his or her asthma medication immediately available in when an asthma attack occurs, Pennsylvania has enacted a law (Act 187) requiring schools to develop a written policy that allows school-aged children to carry (possess) and use (self-administer) their asthma medication.

The [Use of Asthma Inhalers in Schools](#) resource provides more information and guidance.

Resources

- The American Lung Association, the National Asthma Education Prevention Program (NAEPP), the U.S. Environmental Protection Agency and other asthma experts all have recognized that asthma management education is an important part of making schools asthma-friendly. The CDC recommends that all schools provide asthma education programs for students and school staff, such as this [Managing Asthma in Schools](#).
- The [Community Preventive Services Task Force CPSTF](#) recommends school-based asthma self-management interventions to reduce hospitalizations and emergency room visits among children and adolescents with asthma.
- [Expanding Asthma Knowledge](#) from the American Lung Association contains valuable resources to learn asthma basics, spirometry training, and much more. Visit the [American Lung Association's website](#) to access additional resources.

Asthma Self-Management Education Classes

Open Airways for Schools

[Open Airways for Schools](#) (OAS) is the most recognized asthma management program for children. The program teaches children 8-11 years old asthma self-management at a level they can understand. Children who take OAS can take steps to prevent symptoms, they learn to recognize triggers and feel more confident about taking care of their asthma.



The program has been recommended by the National Association of School Nurses and honored with a Health Education Research Award from the NAEPP. The CDC recognizes the program as very effective for childhood asthma management.

Children who participate have:

- Fewer and less severe exacerbations
- Improved school performance
- More confidence in their understanding and ability to take action to manage their asthma
- Increase communication with parents and caregivers for asthma management

Kickin' Asthma

[Kickin' Asthma](#) is an asthma self-management education program for kids ages 11-16 (grades 6-10) that empowers them through a fun and interactive approach to asthma self-management. *Kickin' Asthma* includes different learning techniques suitable for older children and highlights self-management practices, such as recognizing triggers and proper medication use.

Consider supporting your local school district in starting an *Open Airways for Schools* or *Kickin' Asthma* program. Evidence shows interventions are effective when delivered by trained school staff, nurses, and health educators in elementary, middle, and high schools serving diverse populations. This may be a perfect opportunity for high schoolers to meet volunteer hours that may be required for graduation by assisting in facilitating the program.

Additional resources provided from the American Lung Association can be found in [Appendix F](#).

More information can also be found on the [American Lung Association website](#) or email [Robina Montague, RN](#), Quality Insights Practice Transformation Specialist.

Tobacco Cessation Programs



Cigarette smoke can increase the risk of children developing asthma during their lives.

Resources are available to provide parents and caregivers to reduce childhood exposure to secondhand/thirdhand smoke. Secondhand or thirdhand smoke can be a trigger for an asthma attack in a child. Children around smoke have worse and frequent asthma attacks. More than 40% of children who go to the emergency room for asthma live with smokers.

Thirdhand smoke particles are extremely tiny particles that are the residue from tobacco smoke and can easily make their way into the lungs. These particles stick to surfaces and dust for months after the smoke is gone. Thirdhand smoke may be worse for those with asthma as it sticks to skin and clothes; so smoking outdoors, confining to a certain room or airing out a car does not decrease the exposure to thirdhand smoke.

Quitting is not easy, but there are resources that can help!

PA Free Quitline

The [PA Free Quitline](#) is a telephone-based tobacco cessation counseling service offering free coaching, with no judgment (up to five sessions), free nicotine replacement therapy (if medically eligible), and web-based and text- messaging support. The phone number to access the PA Free Quitline is **1-800-QUIT-NOW (1-800-784-8669)**. There is a [video](#) to guide first time callers.

My Life My Quit - Youth Tobacco and Vaping Cessation Program

- Visit MyLifeMyQuit.com
- Five coaching sessions by phone, live texting or chat
- Coaches who help teens navigate social situations while finding healthy ways to cope with stress
- Text or call a dedicated toll-free number (**1-855-891-9989**) for real-time coaching
- Promotional and educational materials designed for youth with messages from youth about quitting tobacco and vaping

It's Free. It's Confidential. **IT WORKS!**

Quality Insights Practice Transformation Specialists can order free direct-ship tobacco/vaping cessation print materials for you.

Additional Programs

- [Health System Tobacco Cessation Programs](#): These programs are listed on the PA Tobacco Cessation Registry website.
- YMCAs: Local Pennsylvania YMCAs may offer *Freedom from Smoking* programs, such as the program at the [Harrisburg Area YMCA](#). You can locate a YMCA in your area [here](#).

Additional Resources

- [Smokefree.gov](#)
- [American Lung Association](#)

The Pressure is Off: Partner with Quality Insights

[Quality Insights](#) is dedicated to assisting your health care team in achieving optimal pediatric asthma management. Through our partnership with the PA DOH, we offer a wide variety of services designed to help you improve and reach your quality improvement goals focused on the reduction of asthma exacerbations through a population approach of proactive asthma management, stepwise treatment, and asthma self-management education.

A few key services Quality Insights is ready to offer include:

1. Technical Assistance: Quality Insights' Practice Transformation Specialists are available to support your clinical quality improvement goals and improve value-based care in your practice setting.
2. Workflow assessment and chart audits to evaluate your current status and monitor successes of your quality improvement activities.
3. Clinical guidelines education including severity assessment and categorization, and step therapy guidelines. Workflow modifications technical assistance on proactive outpatient pediatric asthma population health management, patient engagement and portal optimization strategies.
4. Evidence-based, proven strategies through this NO-COST initiative.

Quality Improvement Solutions for You and Your Patients

The services above represent just a small sample of ways Quality Insights can support your practice. Discover all the ways the team at Quality Insights can help you and your patients make asthma control the goal by reviewing the workflow modifications guide.



Childhood Asthma Control Test for children 4 to 11 years.

This test will provide a score that may help the doctor determine if your child's asthma treatment plan is working or if it might be time for a change.

How to take the Childhood Asthma Control Test

Step 1 Let your child respond to **the first four questions (1 to 4)**. If your child needs help reading or understanding the question, you may help, but let your child select the response. Complete the remaining **three questions (5 to 7)** on your own and without letting your child's response influence your answers. There are no right or wrong answers.

Step 2 Write the number of each answer in the score box provided.

Step 3 Add up each score box for the total.





Step 4 Take the test to the doctor to talk about your child's total score.

**19
or less**

If your child's score is 19 or less, it may be a sign that your child's asthma is not controlled as well as it could be. Bring this test to the doctor to talk about the results.

Have your child complete these questions.





1. How is your asthma today?

 0 Very bad	 1 Bad	 2 Good	 3 Very good
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2. How much of a problem is your asthma when you run, exercise or play sports?

 0 It's a big problem, I can't do what I want to do.	 1 It's a problem and I don't like it.	 2 It's a little problem but it's okay.	 3 It's not a problem.
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3. Do you cough because of your asthma?

 0 Yes, all of the time.	 1 Yes, most of the time.	 2 Yes, some of the time.	 3 No, none of the time.
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4. Do you wake up during the night because of your asthma?

 0 Yes, all of the time.	 1 Yes, most of the time.	 2 Yes, some of the time.	 3 No, none of the time.
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Please complete the following questions on your own.

5. During the last 4 weeks, how many days did your child have any daytime asthma symptoms?

5 Not at all	4 1-3 days	3 4-10 days	2 11-18 days	1 19-24 days	0 Everyday
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6. During the last 4 weeks, how many days did your child wheeze during the day because of asthma?

5 Not at all	4 1-3 days	3 4-10 days	2 11-18 days	1 19-24 days	0 Everyday
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7. During the last 4 weeks, how many days did your child wake up during the night because of asthma?

5 Not at all	4 1-3 days	3 4-10 days	2 11-18 days	1 19-24 days	0 Everyday
------------------------	----------------------	-----------------------	------------------------	------------------------	----------------------

SCORE

TOTAL

Today's Date: _____

Patient's Name: _____

FOR PATIENTS:

Take the Asthma Control Test™ (ACT) for people 12 yrs and older.

Know your score. Share your results with your doctor.

- Step 1 Write the number of each answer in the score box provided.
- Step 2 Add the score boxes for your total.
- Step 3 Take the test to the doctor to talk about your score.

1. In the past 4 weeks, how much of the time did your asthma keep you from getting as much done at work, school or at home?

All of the time1Most of the time2Some of the time3A little of the time4None of the time5

2. During the past 4 weeks, how often have you had shortness of breath?

More than once a day1Once a day23 to 6 times a week3Once or twice a week4Not at all5

3. During the past 4 weeks, how often did your asthma symptoms (wheezing, coughing, shortness of breath, chest tightness or pain) wake you up at night or earlier than usual in the morning?

4 or more nights a week12 or 3 nights a week2Once a week3Once or twice4Not at all5

4. During the past 4 weeks, how often have you used your rescue inhaler or nebulizer medication (such as albuterol)?

3 or more times per day11 or 2 times per day22 or 3 times per week3Once a week or less4Not at all5

5. How would you rate your asthma control during the past 4 weeks?

Not controlled at all1Poorly controlled2Somewhat controlled3Well controlled4Completely controlled5

SCORE

TOTAL

Copyright 2002, by QualityMetric Incorporated.

Asthma Control Test is a trademark of QualityMetric Incorporated.

If your score is 19 or less, your asthma may not be controlled as well as it could be.

Talk to your doctor.

- FOR PHYSICIANS:
- The ACT is:
- A simple, 5-question tool that is self-administered by the patient

Recognized by the National Institutes of Health

Clinically validated by specialist assessment and spirometry¹

Reference: 1. Nathan RA et al. J Allergy Clin Immunol. 2004;113:59-65.



2020 FOCUSED UPDATES TO THE Asthma Management Guidelines



AT-A-GLANCE GUIDE

This At-A-Glance Guide describes a treatment management approach based on recommendations from the *2020 Focused Updates to the Asthma Management Guidelines: A Report from the National Asthma Education and Prevention Program Coordinating Committee Expert Panel Working Group*.¹ Step diagrams from the 2007 Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma (EPR-3) were updated with the new recommendations. The diagrams are intended to help clinicians integrate the new recommendations into clinical care, and are meant to assist, and not replace, clinical judgment or decision-making for individual patient management, with input from individuals with asthma about their preferences.

AGES 0-4 YEARS: STEPWISE APPROACH FOR MANAGEMENT OF ASTHMA

	Intermittent Asthma	Management of Persistent Asthma in Individuals Ages 0–4 Years				
Treatment	STEP 1	STEP 2	STEP 3	STEP 4	STEP 5	STEP 6
Preferred	PRN SABA and At the start of RTI: Add short course daily ICS▲	Daily low-dose ICS and PRN SABA	Daily medium-dose ICS and PRN SABA	Daily medium-dose ICS-LABA and PRN SABA	Daily high-dose ICS-LABA and PRN SABA	Daily high-dose ICS-LABA + oral systemic corticosteroid and PRN SABA
Alternative		Daily montelukast* or Cromolyn,* and PRN SABA		Daily medium-dose ICS + montelukast* and PRN SABA	Daily high-dose ICS + montelukast* and PRN SABA	Daily high-dose ICS + montelukast*+ oral systemic corticosteroid and PRN SABA
			For children age 4 years only, see Step 3 and Step 4 on Management of Persistent Asthma in Individuals Ages 5–11 Years diagram.			
Assess Control						
<ul style="list-style-type: none">First check adherence, inhaler technique, environmental factors,▲ and comorbid conditions.Step up if needed; reassess in 4–6 weeksStep down if possible (if asthma is well controlled for at least 3 consecutive months) <p>Consult with asthma specialist if Step 3 or higher is required. Consider consultation at Step 2.</p> <p>Control assessment is a key element of asthma care. This involves both impairment and risk. Use of objective measures, self-reported control, and health care utilization are complementary and should be employed on an ongoing basis, depending on the individual's clinical situation.</p>						

Abbreviations: ICS, inhaled corticosteroid; LABA, long-acting beta₂-agonist; SABA, inhaled short-acting beta₂-agonist; RTI, respiratory tract infection; PRN, as needed

[▲] Updated based on the 2020 guidelines.

* Cromolyn and montelukast were not considered for this update and/or have limited availability for use in the United States. The FDA issued a Boxed Warning for montelukast in March 2020.

¹The full-length report, *2020 Focused Updates to the Asthma Management Guidelines: A Report from the National Asthma Education and Prevention Program Coordinating Committee Expert Panel Working Group*, can be accessed at nhlbi.nih.gov/asthmaguidelines.



U.S. Department of Health and Human Services
National Institutes of Health
National Heart, Lung, and Blood Institute

NIH Publication No. 20-HL-8142
December 2020

NOTES FOR INDIVIDUALS AGES 0-4 YEARS DIAGRAM

Quick-relief medications	<ul style="list-style-type: none"> Use SABA as needed for symptoms. The intensity of treatment depends on severity of symptoms: up to 3 treatments at 20-minute intervals as needed. Caution: Increasing use of SABA or use >2 days a week for symptom relief (not prevention of EIB) generally indicates inadequate control and may require a step up in treatment. Consider short course of oral systemic corticosteroid if exacerbation is severe or individual has history of previous severe exacerbations.
Each step: Assess environmental factors, provide patient education, and manage comorbidities▲	<ul style="list-style-type: none"> In individuals with sensitization (or symptoms) related to exposure to pests‡: conditionally recommend integrated pest management as a single or multicomponent allergen-specific mitigation intervention.▲ In individuals with sensitization (or symptoms) related to exposure to identified indoor allergens, conditionally recommend a multi-component allergen-specific mitigation strategy.▲ In individuals with sensitization (or symptoms) related to exposure to dust mites, conditionally recommend impermeable pillow/mattress covers only as part of a multicomponent allergen-specific mitigation intervention, but not as a single component intervention.▲
Notes	<ul style="list-style-type: none"> If clear benefit is not observed within 4-6 weeks and the medication technique and adherence are satisfactory, the clinician should consider adjusting therapy or alternative diagnoses.
Abbreviations	<p>EIB, exercise-induced bronchoconstriction; SABA, inhaled short-acting beta₂-agonist.</p> <p>▲Updated based on the 2020 guidelines.</p> <p>‡ Refers to mice and cockroaches, which were specifically examined in the Agency for Healthcare Research and Quality systematic review.</p>

WHAT'S NEW (AGES 0-4 YEARS)

- Step 1:** In children ages 0-4 years with recurrent wheezing, a short (7-10 day) course of daily ICS with as-needed SABA for quick-relief therapy is recommended starting at the onset of a respiratory tract infection.
 - ✓ Recurrent wheezing is defined as at least three episodes of wheezing triggered by apparent infection in their lifetime, or two episodes in the past year, and no symptoms between infections.
 - ✓ One regimen, used in two reviewed studies, is budesonide inhalation suspension, 1 mg twice daily for 7 days at the first sign of respiratory tract infection-associated symptoms.
 - ✓ The main benefit during respiratory tract infections is a reduction in exacerbations requiring systemic corticosteroids.
 - ✓ Caregivers can initiate intermittent ICS treatment at home without a visit to a health care provider when they have clear instructions.
 - ✓ This treatment could affect growth. Carefully monitor growth in children who use this treatment.
- Steps 3 and 4:** For children age 4 years only with persistent asthma, see Steps 3 and 4 on Management of Persistent Asthma in Individuals Ages 5-11 Years.
- Each step:**
 - ✓ Consider the severity of an individual's asthma, the small potential benefit, and the extent of previous symptoms and exacerbations when recommending allergen mitigation interventions.

AGES 5-11 YEARS: STEPWISE APPROACH FOR MANAGEMENT OF ASTHMA

	Intermittent Asthma	Management of Persistent Asthma in Individuals Ages 5-11 Years				
Treatment	STEP 1	STEP 2	STEP 3	STEP 4	STEP 5	STEP 6
Preferred	PRN SABA	Daily low-dose ICS and PRN SABA	Daily and PRN combination low-dose ICS-formoterol [▲]	Daily and PRN combination medium-dose ICS-formoterol [▲]	Daily high-dose ICS-LABA and PRN SABA	Daily high-dose ICS-LABA + oral systemic corticosteroid and PRN SABA
Alternative		Daily LTRA,* or Cromolyn,* or Nedocromil,* or Theophylline,* and PRN SABA	Daily medium-dose ICS and PRN SABA or Daily low-dose ICS-LABA, or daily low-dose ICS + LTRA,* or daily low-dose ICS + Theophylline,* and PRN SABA	Daily medium-dose ICS-LABA and PRN SABA or Daily medium-dose ICS + LTRA* or daily medium-dose ICS + Theophylline,* and PRN SABA	Daily high-dose ICS + LTRA* or daily high-dose ICS + Theophylline,* and PRN SABA	Daily high-dose ICS + LTRA* + oral systemic corticosteroid or daily high-dose ICS + Theophylline* + oral systemic corticosteroid, and PRN SABA
		Steps 2-4: Conditionally recommend the use of subcutaneous immunotherapy as an adjunct treatment to standard pharmacotherapy in individuals ≥ 5 years of age whose asthma is controlled at the initiation, build up, and maintenance phases of immunotherapy [▲]			Consider Omalizumab** [▲]	

Assess Control

- First check adherence, inhaler technique, environmental factors,[▲] and comorbid conditions.
- **Step up** if needed; reassess in 2-6 weeks
- **Step down** if possible (if asthma is well controlled for at least 3 consecutive months)

Consult with asthma specialist if Step 4 or higher is required. Consider consultation at Step 3.

Control assessment is a key element of asthma care. This involves both impairment and risk. Use of objective measures, self-reported control, and health care utilization are complementary and should be employed on an ongoing basis, depending on the individual's clinical situation.

Abbreviations: ICS, inhaled corticosteroid; LABA, long-acting beta₂-agonist; LTRA, leukotriene receptor antagonist; SABA, inhaled short-acting beta₂-agonist

[▲] Updated based on the 2020 guidelines.

* Cromolyn, Nedocromil, LTRAs including montelukast, and Theophylline were not considered in this update and/or have limited availability for use in the United States, and/or have an increased risk of adverse consequences and need for monitoring that make their use less desirable. The FDA issued a Boxed Warning for montelukast in March 2020.

** Omalizumab is the only asthma biologic currently FDA-approved for this age range.

NOTES FOR INDIVIDUALS AGES 5-11 YEARS DIAGRAM

Quick-relief medications	<ul style="list-style-type: none"> Use SABA as needed for symptoms. The intensity of treatment depends on severity of symptoms: up to 3 treatments at 20-minute intervals as needed. In Steps 3 and 4, the preferred option includes the use of ICS-formoterol 1 to 2 puffs as needed up to a maximum total daily maintenance and rescue dose of 8 puffs (36 mcg).▲ Caution: Increasing use of SABA or use >2 days a week for symptom relief (not prevention of EIB) generally indicates inadequate control and may require a step up in treatment.
Each step: Assess environmental factors, provide patient education, and manage comorbidities▲	<ul style="list-style-type: none"> In individuals with sensitization (or symptoms) related to exposure to pests†: conditionally recommend integrated pest management as a single or multicomponent allergen-specific mitigation intervention.▲ In individuals with sensitization (or symptoms) related to exposure to identified indoor allergens, conditionally recommend a multi-component allergen-specific mitigation strategy.▲ In individuals with sensitization (or symptoms) related to exposure to dust mites, conditionally recommend impermeable pillow/mattress covers only as part of a multicomponent allergen-specific mitigation intervention, but not as a single component intervention.▲
Notes	<ul style="list-style-type: none"> The terms ICS-LABA and ICS-formoterol indicate combination therapy with both an ICS and a LABA, usually and preferably in a single inhaler. Where formoterol is specified in the steps, it is because the evidence is based on studies specific to formoterol. In individuals ages 5-11 years with persistent allergic asthma in which there is uncertainty in choosing, monitoring, or adjusting anti-inflammatory therapies based on history, clinical findings, and spirometry, FeNO measurement is conditionally recommended as part of an ongoing asthma monitoring and management strategy that includes frequent assessment.
Abbreviations	<p>EIB (exercise-induced bronchoconstriction); FeNO (fractional exhaled nitric oxide); ICS (inhaled corticosteroid); LABA (long-acting beta₂-agonist); SABA (inhaled short-acting beta₂-agonist).</p> <p>▲Updated based on the 2020 guidelines.</p> <p>† Refers to mice and cockroaches, which were specifically examined in the Agency for Healthcare Research and Quality systematic review.</p>

WHAT'S NEW (AGES 5-11 YEARS)

- For individuals with mild to moderate persistent asthma who are taking daily ICS treatment (likely adherent with prescribed daily ICS) as a controller, increasing the regular daily ICS dose for short periods is not recommended when symptoms increase or peak flow decreases.
- Steps 2-4:** Subcutaneous immunotherapy (SCIT) is recommended as an adjunct treatment for individuals who have demonstrated allergic sensitization and evidence of worsening asthma symptoms after exposure to the relevant antigen or antigens.
 - ✓ Do not initiate, increase, or administer maintenance SCIT doses while individuals have asthma symptoms.
 - ✓ Do not administer SCIT in individuals with severe asthma.
- Steps 3 and 4:** For individuals with moderate to severe persistent asthma already taking low- or medium-dose ICS, the preferred treatment is a single inhaler with ICS-formoterol (referred to as single maintenance and reliever therapy, or “SMART”) used both daily and as needed.
 - ✓ Individuals with a severe exacerbation in the prior year are particularly good candidates for SMART to reduce exacerbations.
 - ✓ Do not use ICS-formoterol as reliever therapy in individuals taking ICS-salmeterol as maintenance therapy.
 - ✓ Individuals whose asthma is uncontrolled on maintenance ICS-LABA with SABA as quick-relief therapy should receive the preferred SMART if possible before moving to a higher step of therapy.
 - ✓ In children ages 4-11 years, there may be a lower risk of growth suppression among those taking SMART versus daily higher-dose ICS treatment.
- Steps 5 and 6:** Consider Omalizumab, the only FDA-approved asthma biologic for this age group.
- Each step:**
 - ✓ Consider the severity of an individual's asthma, the small potential benefit, and the extent of previous symptoms and exacerbations when recommending allergen mitigation interventions.

AGES 12+ YEARS: STEPWISE APPROACH FOR MANAGEMENT OF ASTHMA

	Intermittent Asthma	Management of Persistent Asthma in Individuals Ages 12+ Years				
Treatment	STEP 1	STEP 2	STEP 3	STEP 4	STEP 5	STEP 6 [■]
Preferred	PRN SABA	Daily low-dose ICS and PRN SABA or PRN concomitant ICS and SABA [▲]	Daily and PRN combination low-dose ICS-formoterol [▲]	Daily and PRN combination medium-dose ICS-formoterol [▲]	Daily medium-high dose ICS-LABA + LAMA and PRN SABA [▲]	Daily high-dose ICS-LABA + oral systemic corticosteroids + PRN SABA
Alternative		Daily LTRA* and PRN SABA or Cromolyn,* or Nedocromil,* or Zileuton,* or Theophylline,* and PRN SABA	Daily medium-dose ICS and PRN SABA or Daily low-dose ICS-LABA, or daily low-dose ICS + LAMA, [▲] or daily low-dose ICS + LTRA,* and PRN SABA or Daily low-dose ICS + Theophylline* or Zileuton,* and PRN SABA	Daily medium-dose ICS-LABA or daily medium-dose ICS + LAMA, and PRN SABA [▲] or Daily medium-dose ICS + LTRA,* or daily medium-dose ICS + Theophylline,* or daily medium-dose ICS + Zileuton,* and PRN SABA	Daily medium-high dose ICS-LABA or daily high-dose ICS + LTRA,* and PRN SABA	
		Steps 2–4: Conditionally recommend the use of subcutaneous immunotherapy as an adjunct treatment to standard pharmacotherapy in individuals ≥ 5 years of age whose asthma is controlled at the initiation, build up, and maintenance phases of immunotherapy [▲]			Consider adding Asthma Biologics (e.g., anti-IgE, anti-IL5, anti-IL5R, anti-IL4/IL13)**	

Assess Control

- First check adherence, inhaler technique, environmental factors,[▲] and comorbid conditions.
- **Step up** if needed; reassess in 2–6 weeks
- **Step down** if possible (if asthma is well controlled for at least 3 consecutive months)

Consult with asthma specialist if Step 4 or higher is required. Consider consultation at Step 3.

Control assessment is a key element of asthma care. This involves both impairment and risk. Use of objective measures, self-reported control, and health care utilization are complementary and should be employed on an ongoing basis, depending on the individual's clinical situation.

Abbreviations: ICS, inhaled corticosteroid; LABA, long-acting beta₂-agonist; LAMA, long-acting muscarinic antagonist; LTRA, leukotriene receptor antagonist; SABA, inhaled short-acting beta₂-agonist

[▲] Updated based on the 2020 guidelines.

* Cromolyn, Nedocromil, LTRAs including Zileuton and montelukast, and Theophylline were not considered for this update, and/or have limited availability for use in the United States, and/or have an increased risk of adverse consequences and need for monitoring that make their use less desirable. The FDA issued a Boxed Warning for montelukast in March 2020.

** The AHRQ systematic reviews that informed this report did not include studies that examined the role of asthma biologics (e.g. anti-IgE, anti-IL5, anti-IL5R, anti-IL4/IL13). Thus, this report does not contain specific recommendations for the use of biologics in asthma in Steps 5 and 6.

■ Data on the use of LAMA therapy in individuals with severe persistent asthma (Step 6) were not included in the AHRQ systematic review and thus no recommendation is made.

NOTES FOR INDIVIDUALS AGES 12+ YEARS DIAGRAM

Quick-relief medications	<ul style="list-style-type: none"> Use SABA as needed for symptoms. The intensity of treatment depends on the severity of symptoms: up to 3 treatments at 20-minute intervals as needed. In steps 3 and 4, the preferred option includes the use of ICS-formoterol 1 to 2 puffs as needed up to a maximum total daily maintenance and rescue dose of 12 puffs (54 mcg).▲ Caution: Increasing use of SABA or use >2 days a week for symptom relief (not prevention of EIB) generally indicates inadequate control and may require a step up in treatment.
Each step: Assess environmental factors, provide patient education, and manage comorbidities▲	<ul style="list-style-type: none"> In individuals with sensitization (or symptoms) related to exposure to pests†: conditionally recommend integrated pest management as a single or multicomponent allergen-specific mitigation intervention.▲ In individuals with sensitization (or symptoms) related to exposure to identified indoor allergens, conditionally recommend a multi-component allergen-specific mitigation strategy.▲ In individuals with sensitization (or symptoms) related to exposure to dust mites, conditionally recommend impermeable pillow/mattress covers only as part of a multicomponent allergen-specific mitigation intervention, but not as a single component intervention.▲
Notes	<ul style="list-style-type: none"> The terms ICS-LABA and ICS-formoterol indicate combination therapy with both an ICS and a LABA, usually and preferably in a single inhaler. Where formoterol is specified in the steps, it is because the evidence is based on studies specific to formoterol. In individuals ages 12 years and older with persistent allergic asthma in which there is uncertainty in choosing, monitoring, or adjusting anti-inflammatory therapies based on history, clinical findings, and spirometry, FeNO measurement is conditionally recommended as part of an ongoing asthma monitoring and management strategy that includes frequent assessment. Bronchial thermoplasty was evaluated in Step 6. The outcome was a conditional recommendation against the therapy.
Abbreviations	<p>EIB, exercise-induced bronchoconstriction; FeNO, fractional exhaled nitric oxide; ICS, inhaled corticosteroid; LABA, long-acting beta₂-agonist; SABA, inhaled short-acting beta₂-agonist.</p> <p>▲Updated based on the 2020 guidelines.</p> <p>†Refers to mice and cockroaches, which were specifically examined in the Agency for Healthcare Research and Quality systematic review.</p>

WHAT'S NEW (AGES 12+ YEARS)

- For individuals with mild to moderate persistent asthma who are taking daily ICS treatment (likely adherent with prescribed daily ICS) as a controller, increasing the regular daily ICS dose for short periods is not recommended when symptoms increase or peak flow decreases.
- Step 2:** For individuals with mild persistent asthma, either of the following two treatments are recommended as part of Step 2 therapy: 1) a daily low-dose ICS and as-needed SABA for quick-relief therapy, or 2) intermittent as-needed SABA and ICS used one after the other for worsening asthma.
 - ✓ One approach to intermittent therapy is two to four puffs of albuterol followed by 80–250 mcg of beclomethasone equivalent every 4 hours as needed for asthma symptoms.
 - ✓ Intermittent therapy can be initiated at home with regular provider follow-up to ensure that the intermittent regimen is still appropriate.
 - ✓ Individuals with either low or high perception of symptoms may not be good candidates for as-needed ICS therapy. Daily low-dose ICS with as-needed SABA may be preferred.
- Steps 2–4:** Subcutaneous immunotherapy (SCIT) is recommended as an adjunct treatment for individuals who have demonstrated allergic sensitization and evidence of worsening asthma symptoms after exposure to the relevant antigen or antigens.
 - ✓ Do not initiate, increase, or administer maintenance SCIT doses while individuals have asthma symptoms.
 - ✓ Do not administer SCIT in individuals with severe asthma.
- Steps 3 and 4:** For individuals with moderate to severe persistent asthma already taking low- or medium-dose ICS, the preferred treatment is a single inhaler with ICS-formoterol (referred to as single maintenance and reliever therapy, or “SMART”) used both daily and as needed.
 - ✓ Individuals with a severe exacerbation in the prior year are particularly good candidates for SMART to reduce exacerbations.
 - ✓ Do not use ICS-formoterol as reliever therapy in individuals taking ICS-salmeterol as maintenance therapy.
 - ✓ Individuals whose asthma is uncontrolled on maintenance ICS-LABA with SABA as quick-relief therapy should receive the preferred SMART if possible before moving to a higher step of therapy.
- Each step:**
 - ✓ Consider the severity of an individual's asthma, the small benefit, and the extent of previous symptoms and exacerbations when recommending allergen mitigation interventions.

Asthma Action Plan

Name: _____

Date: ____ / ____ / ____

Doctor's Name: _____ Main Emergency Contact: _____

Doctor's Phone Number: _____ Backup Emergency Contact: _____

**Green Zone: No coughing, wheezing, chest tightness, or shortness of breath.
Can do usual activities.**



Every day: Take these medicines, even if you're not having any symptoms.
Avoid triggers that you know make your asthma worse.

Medicine	How much to take	When to take

Before you exercise: Take [] 2 or [] 4 Puffs of _____ 5 minutes before you start, as needed.

**Yellow Zone: One or more of these symptoms: coughing, wheezing, chest tightness, breathing trouble, waking up at night due to asthma.
Or, if you can only do some, but not all, usual activities.**



Keep taking your Green Zone medicine and avoiding triggers as usual **AND** take this medicine:

Medicine	How much to take and how often		
(Quick-relief)	_____ Puffs Can repeat every ____ minutes, Up to ____ times	OR	[] Nebulizer: Use it once

If you return to the Green Zone after 1 hour, keep monitoring to be sure you stay in the Green Zone.

If you do **not** return to the Green Zone after 1 hour take this medicine:

Medicine	How much to take and how often		
(Quick-relief)	_____ Puffs	OR	[] Nebulizer: Use it once
AND: (Oral Steroid)	Take _____ mg each day for ____ (3 to 10) days		

Call your doctor (or have someone call) just before you take the oral steroid OR _____ minutes/hours after taking the oral steroid, based on the instructions your doctor gave when the medicine was prescribed.

Asthma Action Plan

Name: _____

Date: ____ / ____ / ____

Doctor's Name: _____ Main Emergency Contact: _____

Doctor's Phone Number: _____ Backup Emergency Contact: _____

Red Zone: EMERGENCY! Very short of breath, or quick-relief medicines have not helped, or symptoms are the same or worse after 24 hours in the Yellow Zone. Or, if you cannot do any of your usual activities.



Take this medicine	How much to take		
(Quick-relief)	_____ Puffs Can repeat every ____ minutes, up to ____ times	OR	[] Nebulizer: Can repeat every ____ minutes, up to ____ times
(Oral steroid)	Take _____ mg.		

After you take your medicine, call your doctor right away!
If you're still in the Red Zone after 15 minutes and have not reached your doctor, go to the hospital or call 911!

If you have these **DANGER SIGNS**: trouble walking or talking due to shortness of breath or your lips or fingernails are blue, pale, or gray, take _____ puffs of your quick-relief medicine and GO to the hospital or call 911 NOW!

These **DANGER SIGNS** mean you need help right away. Don't wait to hear back from your doctor.
GO to the hospital or call 911 NOW!

If you use a peak flow meter you can use these scores to determine your current zone:

Your best score	Your green zone	Your yellow zone	Your red zone
_____	_____ or higher (80% of best score)	_____ to _____ (50 to 80% of best score)	_____ or lower (50% of best score)

Know Your Asthma Triggers.

Learn how to avoid triggers to control your asthma.

Triggers are things that make your asthma symptoms worse. People with asthma do not all have the same triggers. Avoiding your triggers is one step you can take to help keep your asthma under control. Work with your healthcare provider to check whether any of these things make your asthma worse, then take the related steps below. Check CDC's webpage for other steps you can take: www.cdc.gov/asthma

Outdoor Triggers

Weather Air Quality Pollen



- Pay attention to radio, television, the internet, or newspaper reports about things that might trigger your asthma. These might include reports about weather, air quality, pollen count, or wildfire conditions.
- Plan outdoor activities for when the air quality is best.
- If pollen triggers your asthma, close windows and turn on air conditioning (if possible) when pollen levels are high.
- When there are wildfires, stay away from areas where there is smoke or vapors. Stay indoors, if possible, to avoid smoke or vapors.
- When it is cold, wear a scarf or face mask that covers your nose and mouth to keep airflow as warm as possible.

Indoor Triggers

If you are allergic to dust mites, cockroaches, rodents, indoor mold, or pets, use an air purifier with a high-energy particulate air (HEPA) filter, and use HEPA filters for vacuum cleaners. Keep your home as clean as possible. If you can, ask someone else to clean your home regularly, or wear a dust mask while you clean.

Pets



If you are allergic to your pet, the best way to avoid exposure is to remove the pet from your home and have the house cleaned. If you can't remove the pet:

- Keep the pet out of your bedroom.
- Ask a family member to wash your pet regularly.
- Use allergen-proof pillow and mattress covers.
- Use an air cleaner with HEPA filter.

Note: Pet fur, skin, and saliva trigger some people's asthma.

Dust mites

(tiny bugs that live in dust and fabric)



- Keep relative humidity levels in your home low, around 30%–50%.
- Wash your bedding every week and dry completely.
- Use allergen-proof pillow and mattress covers.

Know Your Asthma Triggers.

Indoor Triggers

Cockroaches

Mice

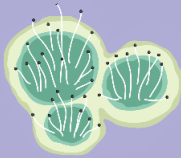
Rats



- Keep your kitchen clean and store food and garbage in closed containers.
- Don't leave out any standing water or other liquids.
- Seal cracks or openings in cabinets, walls, floorboards, and around plumbing.
- Use traps or poison bait to get rid of roaches, mice, or rats. Keep bait away and out of reach of children and pets. Avoid sprays and foggers.

Mold

Humidity



- Fix water leaks as soon as possible and dry damp or wet items within 48 hours.
- Remove all moldy items from your home.
- Use an air conditioner or dehumidifier to keep the air dry in your home. Keep relative humidity levels in your home low, around 30%–50%.
- Empty and clean refrigerator and air conditioner drip pans regularly.
- Use bathroom exhaust fans or open windows when you shower.

Smoke

Sprays

Scents

Disinfectants



- Avoid places where people smoke. If you smoke, ask your healthcare provider how to quit.
- Don't use a wood-burning stove, kerosene heater, or fireplace.
- Avoid perfume, paint, hairspray, and talcum powder.
- Try to stay away when cleaners or disinfectants are being used and right after their use.
- Increase air flow by opening doors and windows and turning on exhaust fans.

Other Common Triggers

Illness



- Contact your healthcare provider if you think you have another health problem that is making it harder for you to breathe. Such problems might include the flu, a cold, acid reflux (heartburn), a sinus infection, severe allergies, or another health concern.

Emotions



- Talk to your healthcare provider if anxiety, stress, or other emotions make your asthma worse.

Notes:

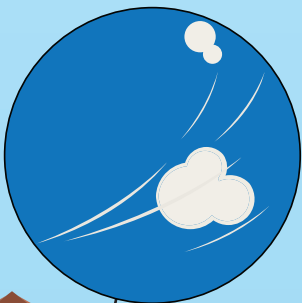
What Are Your Asthma Triggers?



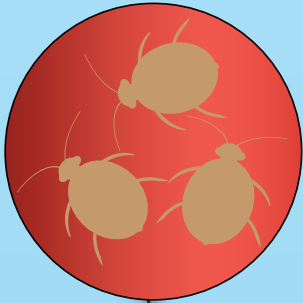
Trees



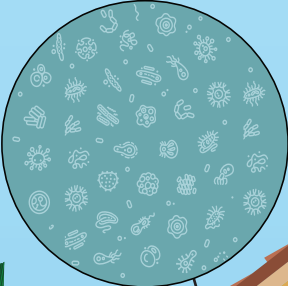
Cleaners



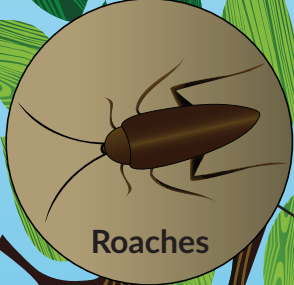
Indoor/Outdoor Dust



Mites



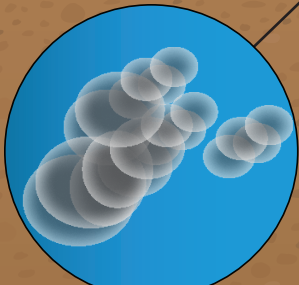
Mold



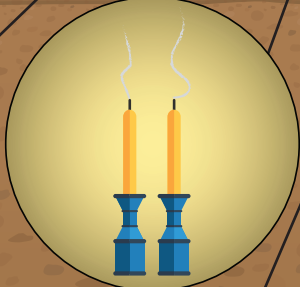
Roaches



Paint Fumes



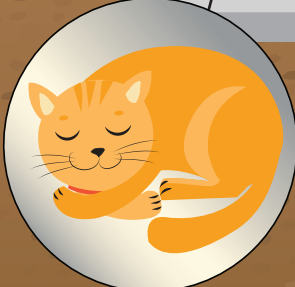
Car Fumes



Scents



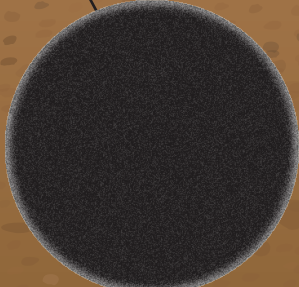
Wood Burning Smoke



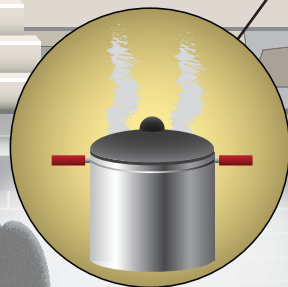
Pets



Smoking



Mold



Cooking Scents Smoke



Pests



Flowers



Programs Available to Support Lung Health

Asthma Basics — In Person or Online

[Lung.org/asthma-basics](https://lung.org/asthma-basics)

Asthma Basics program features a FREE one-hour interactive online learning module designed to help people learn more about asthma. Participants are able to obtain a certificate upon successful completion of the course. The Asthma Basics online learning module is available in English and Spanish.

Advocacy Basics

[Lung.org/training/courses/advocacy-basics](https://lung.org/training/courses/advocacy-basics)

The Advocacy Basics course is a free, 45 minute interactive online learning program designed to help people understand more about lung health advocacy and how they can get involved. In this course, participants will learn about the difference between advocacy and lobbying, how state and federal bill processes work and how to advocate and speak with legislators.

Radon Basics

[Lung.org/radon-basics](https://lung.org/radon-basics)

Radon Basics course is a free one-hour interactive online learning program designed to help people understand more about radon, a radioactive gas commonly found indoors at dangerous levels. The program is also appropriate for anyone who wants to learn more about radon and about how to test for it and fix problems. Individuals who smoke or who have family history of lung cancer, or parents and guardians may especially be interested.

Tobacco Basics

[Lung.org/quit-smoking/smoking-facts/tobacco-basics](https://lung.org/quit-smoking/smoking-facts/tobacco-basics)

Tobacco Basics is a free one-hour online course including five learning modules designed to lay the foundation in understanding the toll of tobacco use in the U.S. In this course participants will learn the difference between tobacco products, including e-cigarettes and vaping devices; the effects of tobacco use on the human body and brain; nicotine dependence and why quitting is so challenging; proven policies that protect public health from the toll of tobacco; and the programs available to help all tobacco users successfully quit for good.

Kickin' Asthma

[Lung.org/kickin-asthma](https://lung.org/kickin-asthma)

Kickin' Asthma is a program that educates and empowers children through a fun and interactive approach to asthma self-management. The program teaches children with asthma ages 11 to 16 the concepts of taking responsibility and self-management, and taking action early so that they don't need to go to the emergency room.

Open Airways For Schools®

[Lung.org/open-airways](https://lung.org/open-airways)

Open Airways For Schools® is a program that educates and empowers children through a fun and interactive approach to asthma self-management. The program teaches children with asthma ages 8 to 11 how to detect the warning signs of asthma, avoid their triggers and make decisions about their health.

The Breathe Well, Live Well®

[Lung.org/breathe-well](https://lung.org/breathe-well)

The Breathe Well, Live Well® Educator Training prepares health professionals, health educators and community health workers to deliver asthma self-management education to adults and families using the American Lung Association's Breathe Well, Live Well program. The program teaches adults the management steps to take control of their asthma so they can be active and healthy.

Asthma-Friendly Schools Initiative

[Lung.org/afsi](https://lung.org/afsi)

The Asthma-Friendly Schools Initiative provides a framework and tools that communities and schools can use to work together on a comprehensive approach to asthma management, including planning tools, policy recommendations, and education programs.

Asthma Medication in Schools:

Assessing a Child's Readiness to Carry and Use a Quick-Relief Inhaler

[Lung.training/courses/readiness](https://lung.org/training/courses/readiness)

A free interactive online learning module designed to assist designated school health staff assess a child's readiness to carry and use a quick-relief inhaler. This course will teach participants to: describe the barriers to access to asthma medication in schools; overcome barriers with a variety of resources; assess a child's readiness to self-carry asthma medications in schools; and implement support activities for all students with asthma regardless of their level of independence. [Learn more.](#)

Four Steps for Creating an Asthma-Friendly School

[Lung.training/courses/four-steps](https://lung.org/training/courses/four-steps)

The American Lung Association's Four Steps for Creating an Asthma-Friendly School is a series of short interactive modules designed to help schools and school districts create a safe and healthy learning environment for students with asthma. In this course, you will learn how to create a comprehensive asthma management plan using the [Asthma-Friendly Schools Initiative Toolkit](#).

Not On Tobacco® Group (N-O-T)

[Lung.org/NOT](https://lung.org/NOT)

N-O-T is the American Lung Association's voluntary smoking cessation program for teens 14 to 19. Over the 10-week program, participants learn to identify their reasons for vaping, smoking or chewing, as well as identify healthy alternatives to tobacco use, and people who will support them in their efforts to quit.

INDEPTH® (Intervention for Nicotine Dependence: Education, Prevention, Tobacco and Health)

[Lung.org/INDEPTH](https://lung.org/INDEPTH)

The American Lung Association's INDEPTH program is an alternative to suspension or citation program that is offered as an option to students who face suspension for violation of school tobacco or nicotine use policies. This program is administered by an adult facilitator in either a one-on-one or group format and can be offered in a school or community-based setting. The program consists of four sessions of approximately 50 minutes geared towards youth and focused on tobacco use, nicotine addiction, establishing healthy alternatives and making the change to be free of all nicotine and tobacco products. For students who choose the INDEPTH program, attendance is *mandatory*.

Freedom From Smoking®

[Lung.org/freedom-from-smoking](https://lung.org/freedom-from-smoking)

The Freedom From Smoking® program is for tobacco users who are ready to quit. Because most people already know that smoking is bad for their health, the program focuses almost exclusively on how to quit, not why to quit. The program uses techniques based on pharmacological and psychological principles and methods designed to help tobacco users gain control over their behavior and break their addiction. Because no single quit-smoking method is effective for all tobacco users, the program includes a comprehensive variety of evidence-based, proven-effective cessation techniques.

Vape-Free Schools Initiative

[Lung.org/vape-free-schools](https://lung.org/vape-free-schools)

To help schools navigate the vaping public health emergency with tools to protect and support students impacted by vaping, we invite all schools nationwide to become a recognized member of the American Lung Association Vape-Free Schools Initiative. Being recognized as a member of the American Lung Association Vape-Free Schools Initiative means that your school is a leader in supporting students impacted by the youth vaping epidemic, offering education, cessation and support. One or more of your school personnel has completed: INDEPTH® facilitator training, N-O-T® facilitator training, and a tobacco-free school policy assessment.

Lung HelpLine

[Lung.org/helpline](https://lung.org/helpline)

To help schools navigate the vaping public health emergency with tools to protect and support students impacted by vaping, we invite all schools nationwide to become a recognized member of the American Lung Association Vape-Free Schools Initiative. Being recognized as a member of the American Lung Association Vape-Free Schools Initiative means that your school is a leader in supporting students impacted by the youth vaping epidemic, offering education, cessation and support. One or more of your school personnel has completed: INDEPTH® facilitator training, N-O-T® facilitator training, and a tobacco-free school policy assessment.

Pennsylvania Pediatric Asthma Control Program:

Workflow Modifications Your Practice Can Implement to Help Patients Improve Pediatric Asthma Management

Providers and practices that are actively engaged in the Pennsylvania Department of Health's Pediatric Asthma Control program have the benefit of scheduling a **no-cost** Workflow Assessment (WFA) with a local Quality Insights Practice Transformation Specialist (PTS). WFAs are completed annually and designed to identify key initiatives practices are already performing and additional workflow modifications that should be considered to improve asthma health outcomes.

The following list includes workflow modifications that can be implemented to help your practice and patients better manage pediatric asthma. We encourage you to partner with Quality Insights to schedule a WFA and implement at least one of the recommendations listed below. If you are not currently working with Quality Insights and would like assistance, please [email Robina Montague, RN](#) or call **1.800.642.8686, Ext. 7814**.

Electronic Health Record (EHR) Actions

	Create and execute an EHR report of patients with asthma (J45.XX diagnosis code). Partner with Quality Insights to schedule appointments with identified patients. Ensure diagnosis code of asthma is added to the medical record and problem list.
	Execute an EHR report of patients with asthma that have not had a wellness appointment or disease management appointment in the last 6 months. Perform outreach utilizing phone calls, text messaging, and/or patient portal to schedule follow-up appointment for an asthma check.
	Partner with Quality Insights to determine EHR capability to capture and report at the race and ethnicity level.
	Review EHR dashboards to identify opportunities for asthma management in subsets of patients. Determine EHR capabilities for identification and reporting on priority populations (underserved) and disparities.
	Partner with Quality Insights to identify patients that would benefit from asthma self-management education (ASME) by querying relevant EHR fields. Educate all members of the care team on referral process for programs including the providers who are key in patients accepting the recommendations. Explore EHR capabilities to add clinical decision support (CDS) alerts or prompts to remind care team to refer..
	Review and implement the Protocol for Responding to and Assessing Patients' Assets, Risks, and Experiences) PRAPARE tool EHR template . If already utilizing PRAPARE, document current workflow and utilization of information gathered in the tool.
	Evaluate and report use of social determinants of health (SDOH) ICD-10 codes.

	Partner with Quality Insights to mitigate barriers related to use of SDOH identification tools and ICD-10 coding.
	Implement process for documenting all referrals (including specialist, ASME, and community-based organizations) in structured data fields or via non-EHR tracking method for monitoring of feedback and participation.

Protocol & Workflow Actions

	Review practice protocols with focus on disparate populations for sharing and discussing asthma control and management among clinicians and providers.
	Review/develop a asthma office protocol that promotes current guidelines, ASME, medication adherence, healthy diet, physical activity, and promotion of community lifestyle change programs.
	Implement annual staff training to review appropriate procedures for obtaining an accurate spirometry or peak flow reading and competency on teaching proper techniques for inhaler use with the teach-back method.

Practice & Clinical Solutions

Using the [2022 Pediatric Asthma Practice Education Module](#) as a guide:

	Utilize and share asthma inhaler instructional videos with patients (i.e. waiting room, patient portal, email, text messaging). Additional videos are available here .
	Utilize and share the asthma patient engagement video (<i>coming soon</i>) from PA DOH Asthma Control Program, and the Small Steps to Big Improvements: How to Get Asthma in Control video from Quality Insights.
	Implement an Asthma Patient Monitor Program. Identify 1) a staff member who can act as a program champion, and 2) roles for other members of the team. Partner with Quality Insights Practice Transformation Specialist for resources.
	Utilize apps, Bluetooth, and patient portals to improve childhood asthma control test (C-ACT) results reporting by patients/parents and caregivers to clinicians.
	Review capability and use of telehealth for the management of pediatric asthma.
	Identify and refer eligible patients to ASME as available in area and including, but not limited to: Supplemental Nutrition Assistance Program Education (SNAP-Ed) programs, and Expanded Food and Nutrition Education Programs (EFNEP).
	Establish a closed-loop referral process with an ASME program. Partner with Quality Insights in a referral letter, portal message, or text campaign for referrals to program.
	Participate in an in-person or virtual presentation to learn more about American Lung Association Open Airways for Schools and/or Kickin' Asthma programs.

Patient Education Actions

	Share community resources with patients promoting CDC-approved programs for asthma self-management and education (i.e. American Lung Association Open Airways for Schools and Kickin' Asthma)
	Implement use of the Medication Adherence Estimator® and included Interpretation Guide to enhance medication adherence. Access Quality Insights 2022 Medication Adherence Practice Module for more information.
	Provide patient education on how to use inhalers .
	Create and review an Asthma Action Plan with patient, parent/caregiver.
	Start early teaching younger children about their asthma using resources aimed at younger children, such as Dusty The Asthma Goldfish and His Asthma Triggers Funbook .

This project was funded by the Pennsylvania Department of Health's Asthma Control Program. The Asthma Control Program is funded through a cooperative agreement with the Centers for Disease Control and Prevention under grant number NUE1EH001394.
Publication number PADOH-AC-062722

Quality Insights Pediatric Asthma Management Practice Module

Earn Free Continuing Medical or Nursing Education Credits (1.0 credit hours)



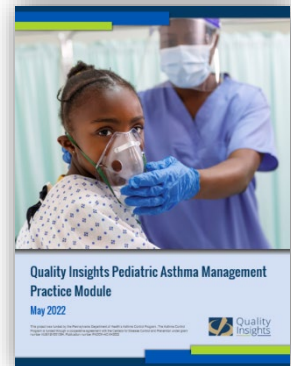
Description

In 2021, the Asthma and Allergy Foundation of America (AAFA) identified five Pennsylvania cities in their list of the Top 100 Asthma Capitals: #1 Allentown, #7 Philadelphia, #39 Harrisburg, #40 Scranton, and #53 Pittsburgh. This report's ranking is based on weighted outcomes: asthma prevalence, asthma-related emergency department visits, and asthma-related deaths.

1 in 8 kids

According to the [Pennsylvania Department of Health Asthma Control Program](#), approximately **one in eight children in PA had lifetime asthma in 2019**.

This 60-minute program provides an in-depth review of Quality Insights' 2022 Pediatric Asthma Management Module. This module was developed through a joint partnership with Quality Insights and the Pennsylvania Department of Health Asthma Control Program with CDC-grant funding. The purpose of this course is to support and supplement practice quality improvement efforts related to pediatric asthma management. The information presented is appropriate for physicians, physician assistants, nurse practitioners, nurses, and other clinical support staff.



After completing this evidence-based program, the learner will be able to:

1. Explain asthma severity assessment and categorization
2. Describe key aspects of proactive asthma practice management
3. Discuss how you can utilize your electronic health record (EHR) to identify, monitor and manage patients living with asthma



CME/CE Requirements

Receive continuing education credit now through **June 7, 2024** by:

1. Attending an in-person or virtual presentation or reading the Pediatric Asthma Management Practice Module located on the [Quality Insights' website](#).
2. If you choose the virtual option, [watch the recorded presentation](#).
3. Complete an [online evaluation](#) as part of a 60-minute learning activity

For questions related to this course or to schedule a live presentation, please contact Robina Montague, RN at RMontague@qualityinsights.org.



Scan to access the online evaluation



Accreditation Information

Nurses & Physicians: The CAMC Health Education and Research Institute designates this Internet enduring material activity for a maximum of 1 AMA PRA Category 1 Credit(s)™. Physicians should only claim credit commensurate with the extent of their participation in the activity. In support of patient care, this activity has been planned and implemented by the CAMC Health Education and Research Institute and the Quality Insights. CAMC Health Education and Research Institute is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

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