Asthma Guidelines-Based Care Coverage Project: Benchmarks for Key Aspects of Optimal Coverage (2020 Update)

Over 24 million Americans have asthma, including 5.5 million children.[1] The findings of numerous studies and pilot programs indicate that adherence to evidence-based care has been associated with better patient outcomes for people with asthma, including fewer hospitalizations, fewer days of missed school and work, and reduced treatment costs.

The National Asthma Education and Prevention Program (NAEPP) has published clinical guidelines for the diagnosis and treatment of asthma since 1991. These include the NAEPP Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma (EPR-3), released in 2007, and the 2020 Focused Updates to the Asthma Management Guidelines: A Report from The National Asthma Education and Prevention Program Expert Panel Working Group, released in December 2020. Other reputable, scientific documents, including the Guide to Community Preventive Services, have also identified evidence-based best practices for what is needed to reduce the disease burden for patients living with asthma.

Research shows that while the number of people living with asthma has increased, people with asthma are better managing their disease. However, the gains have not been universal. Asthma prevalence rates are disproportionately high in minority populations, especially among Black Americans and American Indians and Alaska Natives.[2] Non-Hispanic Black Americans are nearly three times more likely to die from asthma than white Americans.[3] Additionally, children with Medicaid coverage are more likely to receive care in the emergency department and be hospitalized as a result of their asthma than their peers with other health coverage.[4]

In 2015, the Lung Association received a competitive award from the Centers for Disease Control and Prevention's (CDC) National Center for Environmental Health to track asthma guidelines-based care in state Medicaid programs. To guide the project, the Lung Association convened a group of stakeholder organizations to develop "Asthma Guidelines-Based Care Coverage Project: Benchmarks for Key Aspects of Optimal Coverage," which guided the first five years of the project. In 2020, the Lung Association convened a second stakeholder group to update the original group's benchmark document in response to the updates to the NAEPP guidelines, as well as lessons learned from the first five years of the project.

The American Lung Association sought advice from a range of experts to develop the plan and identify conferees who could provide expert review and participate in developing the consensus

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[1] American Lung Association, Asthma Trends Brief, Available at https://www.lung.org/research/trends-in-lung-disease/asthma-trends-brief/trends-and-burden.
[2] Id.
[3] Id.
[4] Finklestein JA, et al. Comparing asthma care for Medicaid and non-Medicaid children in a health maintenance organization. *Archives of Adolescent and Pediatric Medicine, June 2000; 154(6):563-8.*

benchmarks. The inclusion of a wide range of perspectives and expertise was fundamental to the success of the project. The 2020 stakeholder group included 13 people representing 11 organizations and four Lung Association staff who met four times virtually and corresponded via email.

The updated benchmark document identifies benchmarks for asthma guidelines-based care for eight different criteria, which together encompass key elements of the NAEPP EPR-3 guidelines and the 2020 updates, the Community Guide and other relevant guidelines. The document also defines seven barriers to care. These components are outlined in detail in the following sections.

Quick Relief Medications

Fast acting or quick relief medications are taken to provide immediate relief of bronchoconstriction and its accompanying acute symptoms.[5] There are two classes of these medications: Anticholinergics and Inhaled Short-Acting Beta2-Agonists (SABAs).[6] Data collected on quick relief medications will include Medicaid coverage of these medications, including both inhaled and nebulized forms when indicated, and any barriers to access. The collection of these data are brand neutral.

Benchmark for Guidelines-Based Care: Coverage of two medications per medication type with no barriers for inhaled SABAs and coverage of one medication per medication type with no barriers for other quick relief medications.

Class	Medication Type	Benchmark
SABA		
	Albuterol Sulfate (nebulized)	Coverage of at least one medication brand or generic without barriers
	Albuterol Sulfate (inhaled)	Coverage of at least two medications brand or generic without barriers
	Levalbuterol (nebulized)	Coverage of at least one medication brand or generic without barriers
	Levalbuterol (inhaled)	Coverage of at least two medications brand or generic without barriers
Anticholinergics		
	Ipratropium[7]	Coverage of at least one medication brand or generic without barriers
	Ipratropium with Albuterol[7]	Coverage of at least one medication brand or generic without barriers

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[5] National Heart, Lung, and Blood Institute, National Asthma Education and Prevention Program. Expert Panel Report 3: Guidelines for the diagnosis and management of asthma. Bethesda, MD: US Department of Health and Human Services, National Institute of Health. 2007; pub. No.07-4051. Accessed at: https://www.nhlbi.nih.gov/health-topics/guidelines-for-diagnosis-management-of-asthma.

[6] 1. The ERP3 recommends that SABAs are the drug of choice for treating acute asthma symptoms and exacerbations and for preventing EIB (Evidence A). 2. The EPR3 concludes that ipratropium bromide, administered in multiple doses along with SABA in moderate or severe asthma exacerbations in the ED, provides additive benefit (Evidence B).

[7] Data regarding coverage of this medication is no longer collected due to the discontinuation of products indicated for asthma.

Controller Medications

EPR-3 instructs that long-term control medications be taken daily on a long-term basis to control persistent asthma.[8] The *2020 Focused Updates* introduce Single Maintenance Reliever Therapy (SMART) as a new treatment option. SMART therapy has the potential to increase the dosage of a one-month supply of the ICS-formetrol combination medication when used for reliever therapy as well. Data collected for controller medications will include each of the medication types. This data will be brand neutral and include any barriers to access the medication.

Benchmark for Guidelines-Based Care:

- **Inhaled Corticosteroids: Coverage of inhaled Budesonide and coverage of Beclomethasone, Ciclesonide, Flunisolide, Fluticasone propionate or Mometasone furoate without barriers.[9]**
- **Systemic Corticosteroids: Coverage of one medication per medication type without barriers.**
- **Long-acting beta-agonists (LABAs): Coverage of one medication per medication type without barriers, only if a combined medication is not covered.**
- **Long-acting muscarinic antagonist (LAMAs): Coverage of one medication per medication type without barriers.**
- **Combined Medications: Coverage of one medication per medication type without barriers.**
- **Cromolyn: Coverage of one medication per medication type without barriers.**
- **Leukotriene Receptor Antagonists: Coverage of one medication per medication type without barriers.**
- **5-Lipoxygense Inhibitor: Coverage of one medication per medication type without barriers.**
- **Methyxanthines: Coverage of one medication per medication type without barriers.**
- **Immunomodulators: Coverage of one medication per medication type without barriers.**

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[8] National Heart, Lung, and Blood Institute, National Asthma Education and Prevention Program. Expert Panel Report 3: Guidelines for the diagnosis and management of asthma. Bethesda, MD: US Department of Health and Human Services, National Institute of Health. 2007; pub. No.07-4051. Accessed at: https://www.nhlbi.nih.gov/health-topics/guidelines-for-diagnosis-management-of-asthma.

[9] There are a number of medications listed by their full clinical name. During the data collection process, all variations of the medication name, including both brand and generic names will be searched. There is not a preference for one brand over another or for a brand over a generic or vice-versa.

Class	Medication Type	Benchmark
Inhaled Corticosteroids		
	Budesonide (nebulized)	Coverage of at least one medication brand or generic without barriers
	Beclomethasone	Coverage of Beclomethasone, Ciclesonide, Flunisolide, Fluticasone propionate or Mometasone furoate (brand or generic) without barriers
	Ciclesonide	Coverage of Beclomethasone, Ciclesonide, Flunisolide, Fluticasone propionate or Mometasone furoate (brand or generic) without barriers
	Flunisolide[10]	Coverage of Beclomethasone, Ciclesonide, Flunisolide, Fluticasone propionate or Mometasone furoate (brand or generic) without barriers
	Fluticasone propionate	Coverage of Beclomethasone, Ciclesonide, Flunisolide, Fluticasone propionate or Mometasone furoate (brand or generic) without barriers
	Mometasone furoate	Coverage of Beclomethasone, Ciclesonide, Flunisolide, Fluticasone propionate or Mometasone furoate (brand or generic) without barriers
Systemic Corticosteroids		
	Methylprednisolone	Coverage of at least one medication brand or generic without barriers
	Prednisolone	Coverage of at least one medication brand or generic without barriers
	Prednisone	Coverage of at least one medication brand or generic without barriers
LABA[11]		
	Formoterol fumarate[10]	Coverage only if a combined medication is NOT covered
	Salmeterol xinafoate	Coverage only if a combined medication is NOT covered
LAMA		
	Tiotropium bromide	Coverage of at least one medication brand or generic without barriers

[10] Data regarding coverage of this medication is no longer collected due to the discontinuation of products indicated for asthma.
[11] To be used only in conjunction with inhaled or systemic steroids.

Combined Medications		
	Fluticasone propionate and Salmeterol	Coverage of at least one medication brand or generic without barriers
	Mometasone furoate and Formoterol fumarate	Coverage of at least one medication brand or generic without barriers
	Budesonide and Formoterol fumarate	Coverage of at least one medication brand or generic without barriers
	Fluticasone furoate and vilanterol	Coverage of at least one medication brand or generic without barriers
	Fluticasone furoate, umeclidinium and vilanterol	Coverage of at least one medication brand or generic without barriers
Cromolyn		
	Cromolyn	Coverage of at least one medication brand or generic without barriers
Leukotriene Receptor Antagonists		
	Montelukast	Coverage of at least one medication brand or generic without barriers
	Zafirlukast	Coverage of at least one medication brand or generic without barriers
5-Lipoxygenase Inhibitor		
	Zileuton	Coverage of at least one medication brand or generic without barriers
Methylxanthines		
	Theophylline	Coverage of at least one medication brand or generic without barriers
Immunomodulators		
	Omalizumab	Coverage of at least one medication brand or generic without barriers

Devices

Asthma medications, discussed above, can be administered in various ways. In order for proper administration of medication certain devices are sometimes required. There are three devices and their components that are necessary for guidelines-based care. They are: valved-holding chambers, nebulizers and peak-flow meters.

It should be noted there is a distinction between spacers and valved-holding chambers. EPR-3 states that valved-holding chambers are preferable to a generic spacer.[12] As such, the data collected will be for coverage of valved-holding chambers, not spacers.

In addition to the barriers that will be tracked for medications, it will also be noted when a device is included in the durable medical equipment (DME) benefit, rather than on the plan formulary.

Benchmark for Guidelines-Based Care:
- o **Coverage of at least one nebulizer and peak-flow meter without barriers.**
- o **Coverage of at least two valved-holding chambers without barriers.**

Devices	
Type of Device	**Benchmark**
Nebulizer	Coverage of at least one device without barriers
Peak-Flow Meters	Coverage of at least one device without barriers
Valved-Holding Chambers	Coverage of at least two devices without barriers

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[12] National Heart, Lung, and Blood Institute, National Asthma Education and Prevention Program. Expert Panel Report 3: Guidelines for the diagnosis and management of asthma. Bethesda, MD: US Department of Health and Human Services, National Institute of Health. 2007; pub. No.07-4051. Accessed at: https://www.nhlbi.nih.gov/health-topics/guidelines-for-diagnosis-management-of-asthma.

Allergen Testing

The NAEPP guidelines include allergy testing for patients with persistent asthma, as reducing exposure to allergens may significantly reduce symptoms and the need for medications for patients with asthma.[13] Common asthma triggers include allergens. Healthcare providers should ask about exposures to inhaled allergens and their impact on asthma symptoms to determine if allergen testing is needed. The Lung Association will track coverage of allergy testing and any barriers.

Benchmark for Guidelines-base care: Allergy testing is covered without barriers.

Allergen Testing	
	Benchmark
Allergy testing	Testing is covered without barriers

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[13] National Heart, Lung, and Blood Institute, National Asthma Education and Prevention Program. Expert Panel Report 3: Guidelines for the diagnosis and management of asthma. Bethesda, MD: US Department of Health and Human Services, National Institute of Health. 2007; pub. No.07-4051. Accessed at: https://www.nhlbi.nih.gov/health-topics/guidelines-for-diagnosis-management-of-asthma.

Allergy Treatment – Allergen Immunotherapy

EPR-3 and the American Academy of Allergy, Asthma & Immunology state the need for allergen immunotherapy for patients with asthma who have known allergen sensitivities (as determined by an allergy test) and whose symptoms cannot be controlled by medication.[14,15] The Lung Association will track access to allergen immunotherapy for asthma patients with a known allergen and any barriers.

Benchmark for Guidelines-Based Care: Asthma patients with a known allergen have access to allergen immunotherapy without barriers.

Allergen Immunotherapy	
	Benchmark
Allergen Immunotherapy	Access to allergen immunotherapy without barriers.

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[14] Cox, L, et al. Allergen immunotherapy: A practice parameter third update. http://www.aaaai.org/Aaaai/media/MediaLibrary/PDF%20Documents/Practice%20and%20Parameters/Allergen-immunotherapy-Jan-2011.pdf

[15] National Heart, Lung, and Blood Institute, National Asthma Education and Prevention Program. Expert Panel Report 3: Guidelines for the diagnosis and management of asthma. Bethesda, MD: US Department of Health and Human Services, National Institute of Health. 2007; pub. No.07-4051. Accessed at: https://www.nhlbi.nih.gov/health-topics/guidelines-for-diagnosis-management-of-asthma.

Lung Function Testing

Lung function tests (also called pulmonary function tests) include a variety of tests that check how well the lungs work. Spirometry measures the amount of air the lungs can hold. The test also measures how forcefully one can empty air from the lungs. Coverage of spirometry and related barriers to testing will be tracked.

Fractional exhaled nitric oxide (FeNo) testing can help to measure airway inflammation. The [2020 Focused Updates to the Asthma Management Guidelines](#) recommends FeNo testing as part of diagnosis and ongoing asthma management for certain individuals.[16] Coverage of FeNo testing and related barriers to testing will be tracked.

Benchmark for Guidelines-base care: Both spiromtery and FeNo testing are covered without barriers.

Lung Function Testing	
	Benchmark
Spirometry	Testing is covered without barriers.
FeNo Testing	Testing is covered without barriers.

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[16] National Heart, Lung, and Blood Institute, National Asthma Education and Prevention Program. 2020 Focused Updates to the Asthma Management Guidelines: A Report from The National Asthma Education and Prevention Program Expert Panel Working Group. Bethesda, MD: US Department of Health and Human Services, National Institute of Health. 2020. Accessed at: https://www.nhlbi.nih.gov/health-topics/asthma-management-guidelines-2020-updates

Home Visits

EPR-3 and the Guide to Community Preventive Services each recommend home visits and the interventions performed during those visits be made available for patients with allergic asthma.[17,18] Home visits and interventions are comprised of three components (education, assessment and intervention) and are categorized by level of intensity. The following definitions are adapted from the Guide to Community Preventive Services:

- *Minor Intensity Intervention*: An intervention that addresses the home environment, has at least two components, and includes assessment and education of either integrated pest control or at least two other triggers. A minor intensity intervention should include at least two visits to a patient's home.[19] A minor intensity intervention does not need to cover supplies.
- *Moderate Intensity Intervention*: An intervention that addresses the home environment, has at least two components, and includes assessment and education of at least two asthma triggers. A moderate intensity intervention should include at least two visits to a patient's home.[18] The intervention includes providing at least two supplies from the moderate supply list.
- *Major Intensity Intervention*: An intervention that addresses the home environment has at least two components, and includes assessment and education of at least two asthma triggers. A major intensity intervention should include at least two visits to a patients home.[18] The intervention includes providing at least two supplies, including one from the major supply list.

Benchmark for Guidelines-Based Care: Minor intensity intervention home visit is covered.

Data will be collected on coverage of home visits and interventions. The recorded data will include if a state has coverage for a minor intensity intervention or if home visits are not covered. State Medicaid programs that are covering moderate or major intensity interventions will be acknowledged, however, this information will not be recorded as part of the benchmark data.

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[17] National Heart, Lung, and Blood Institute, National Asthma Education and Prevention Program. Expert Panel Report 3: Guidelines for the diagnosis and management of asthma. Bethesda, MD: US Department of Health and Human Services, National Institute of Health. 2007; pub. No.07-4051. Accessed at: https://www.nhlbi.nih.gov/health-topics/guidelines-for-diagnosis-management-of-asthma.

[18] Guide to Community Preventive Services. Asthma control. www.thecommunityguide.org/asthma/index.html. Last updated: 9/27/2013.

[19] Centers for Disease Control and Prevention. Strategies for Addressing Asthma in Homes. May 2017. Accessed at https://www.cdc.gov/asthma/pdfs/Asthma_In_Homes_508.pdf.

Components of Home Visit
- Self-Management Education
- Environmental Assessment
- Social services
- Coordinated care

Asthma Triggers
- Smoking / Secondhand Smoke
- Mold/ dampness
- Pests (Integrated Pest Control)
- Pets
- Dust mites
- VOCs
- Combustion sources

Supply List
- Moderate Intensity Supplies
    - Impermeable mattress covers
    - Impermeable pillow cases
    - Traps or gel bait (as part of integrated pest management)
    - Toolkit of hypo allergenic cleaning items
    - HEPA filter vacuum
    - Air conditioners (small unit)
    - Low-toxicity pesticides (as part of integrated pest management)
    - Caulk, sealant for patching holes (as part of integrated pest management)
    - Integrated pest management
    - Repairing minor leaks
- Major Intensity Supplies
    - Carpet removal or replacement
    - Air conditioning systems
    - Ventilation Systems
    - Repairing major leaks
    - Extensive structural repairs (e.g., roof replacement)

Home Visits and Intervention	
	Benchmark
Home Visit and Intervention	Minor intensity intervention home visit without barriers.

Self-Management Education

EPR-3 states patients with asthma should have access to asthma self-management education.[20] Since asthma is a chronic disease that requires daily monitoring and maintenance by the patient, asthma self-management education is key in improving patient outcomes. According to the EPR-3 guidelines, key educational components of self-management education include basic facts about asthma; the role of medications, including the difference between quick relief and controller medications; and patient skills, including taking medications correctly, identifying and avoiding environmental triggers, self-monitoring and using a written asthma action plan. Coverage for asthma self-management education will be tracked and any barriers to it will also be tracked. Disease management programs will not count as self-management education.

Benchmark for Guidelines-Based Care: Asthma self-management education is covered without barriers.

Self-Management Education	
	Benchmark
Asthma self-management education	Education is covered without barriers.

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[20] National Heart, Lung, and Blood Institute, National Asthma Education and Prevention Program. Expert Panel Report 3: Guidelines for the diagnosis and management of asthma. Bethesda, MD: US Department of Health and Human Services, National Institute of Health. 2007; pub. No.07-4051. Accessed at: https://www.nhlbi.nih.gov/health-topics/guidelines-for-diagnosis-management-of-asthma.

Barriers

Throughout the document, barriers to care are cited as an impediment to guidelines-based care. Below is a list of common barriers that will be tracked as part of the project. In addition to the barriers below, there are systemic barriers to access care. Systemic barriers present a challenge for Medicaid patients' access to care, but since the barriers are systemic, they cannot be tracked in the discrete categories described in this document.

Barriers		
Barrier	Definition	Tracked for Components
Age Limits (AL)	This barrier indicates that the treatment is only covered if a patient is a certain age, including if a treatment has additional barriers for patients of certain ages. *This barrier only applies provided it is more restrictive than NAEPP recommendations or FDA-approved guidelines.*	All Components
Co-Payments (Co-Pay)	This is a payment made for a specific service or treatment, even when it is covered by the insurance company (in this case Medicaid or Medicaid managed care plans).	All Components
Durable Medical Equipment (DME)	This means a device is covered only as DME, which could result in having to pay full price for the device at a retail pharmacy.	Devices
Eligibility Criteria	This means a plan will only provide the treatment after a patient has experienced an incident(s), such as numerous visits to the Emergency Department.	Controller Medications (Immunomodulators only), Lung Function Testing, Home Visits, Self-Management Education
Prior Authorization (PA)	This barrier requires the provider to get approval from the insurance company (in this case Medicaid or Medicaid managed care plans) before the treatment will be covered (i.e. paid for).	All Components

Quantity Limits (QL)	There is a limit on the number of treatments covered over a given period of time (i.e. month, year).	All Components
Step Therapy (ST)	This means a plan requires a patient to try and fail on a different treatment before the insurance company (in this case Medicaid or Medicaid managed care plans) will pay for the treatment that their provider prescribes.	Quick Relief Medications, Controller Medications

Additionally, the American Lung Association tracks two questions regarding barriers that apply across categories of care.

1. Does the state Medicaid program or managed care plan have any limits on the total number of medications that a patient may be prescribed?
2. Does the state Medicaid program or managed care plan have any limits on the number of visits to specialist providers (i.e. allergists, pulmonologists, etc.) in a given period of time?

Updated January 2021

NOTE: Neither the results of this American Lung Association initiative nor the recommendations contained in this document in any way represent an official CDC position. They do however, represent a broad agreement from multi-disciplinary stakeholders interested in reducing asthma morbidity and mortality.