Asthma- Part 2

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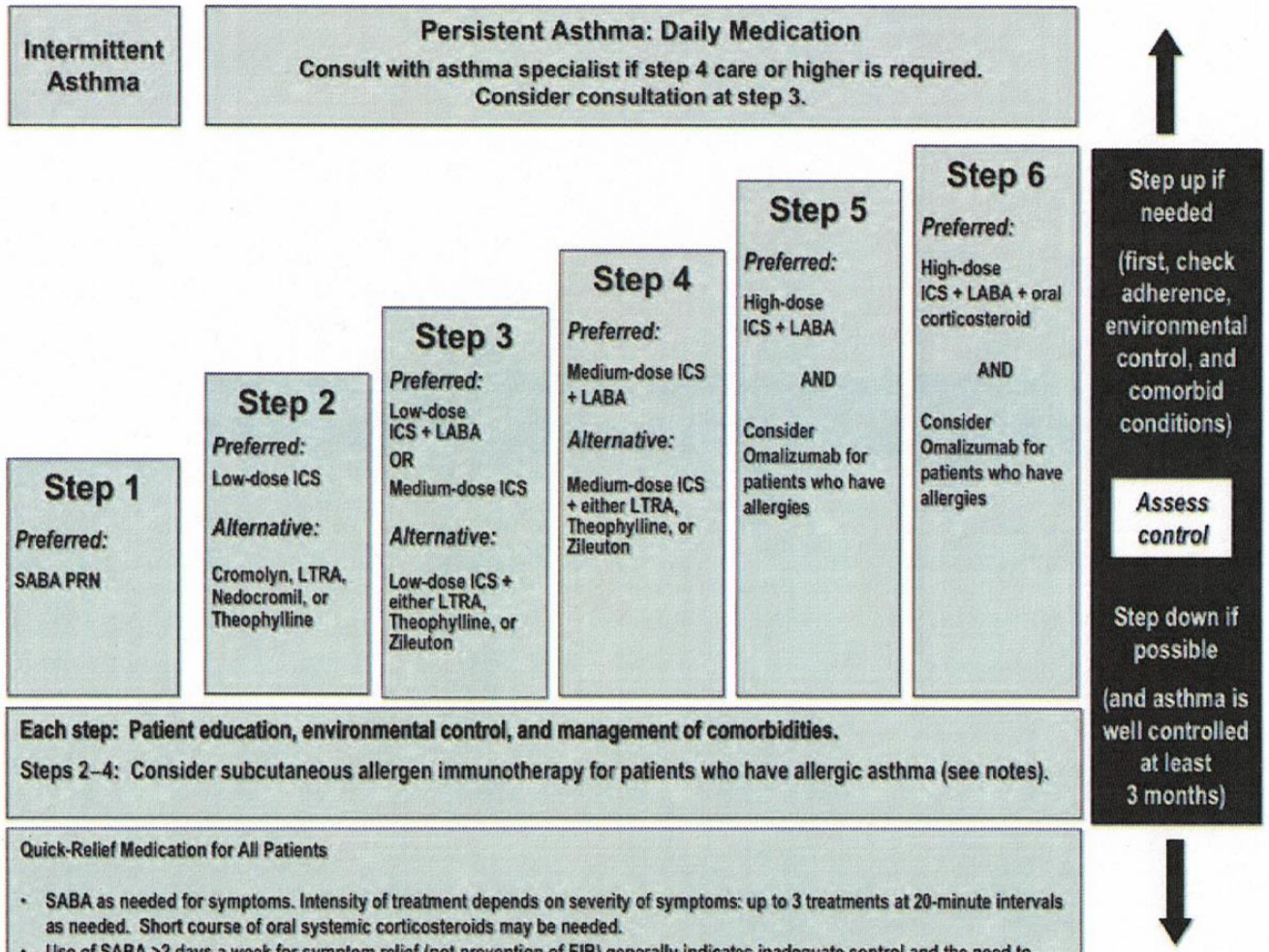
FIGURE 16. STEPWISE APPROACH FOR MANAGING ASTHMA IN YOUTHS ≥12 YEARS OF AGE AND ADULTS

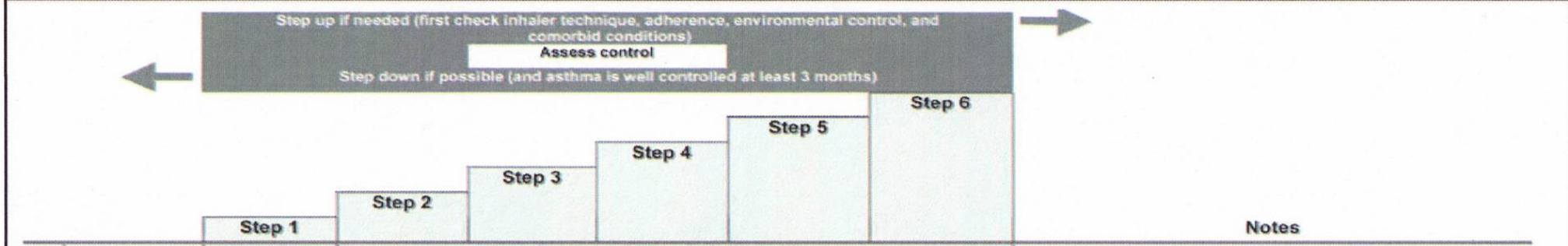


Key: **Alphabetical order is used when more than one treatment option is listed within either preferred or alternative therapy.** ICS, inhaled corticosteroid; LABA, long-acting inhaled beta$_2$-agonist; LTRA, leukotriene receptor antagonist; SABA, inhaled short-acting beta$_2$-agonist

Notes:

- The stepwise approach is meant to assist, not replace, the clinical decisionmaking required to meet individual patient needs.
- If alternative treatment is used and response is inadequate, discontinue it and use the preferred treatment before stepping up.
- Zileuton is a less desirable alternative due to limited studies as adjunctive therapy and the need to monitor liver function. Theophylline requires monitoring of serum concentration levels.
- In step 6, before oral corticosteroids are introduced, a trial of high-dose ICS + LABA + either LTRA, theophylline, or zileuton may be considered, although this approach has not been studied in clinical trials.
- Step 1, 2, and 3 preferred therapies are based on Evidence A; step 3 alternative therapy is based on Evidence A for LTRA, Evidence B for theophylline, and Evidence D for zileuton. Step 4 preferred therapy is based on Evidence B, and alternative therapy is based on Evidence B for LTRA and theophylline and Evidence D zileuton. Step 5 preferred therapy is based on Evidence B. Step 6 preferred therapy is based on (EPR—2 1997) and Evidence B for omalizumab.
- Immunotherapy for steps 2–4 is based on Evidence B for house-dust mites, animal danders, and pollens; evidence is weak or lacking for molds and cockroaches. Evidence is strongest for immunotherapy with single allergens. The role of allergy in asthma is greater in children than in adults.
- Clinicians who administer immunotherapy or omalizumab should be prepared and equipped to identify and treat anaphylaxis that may occur.

FIGURE 13. STEPWISE APPROACH FOR MANAGING ASTHMA LONG TERM IN CHILDREN, 0–4 YEARS OF AGE AND 5–11 YEARS OF AGE



Children 0–4 Years of Age

	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6
	Intermittent Asthma	Persistent Asthma: Daily Medication Consult with asthma specialist if step 3 care or higher is required. Consider consultation at step 2.				
Preferred	SABA PRN	Low-dose ICS	Medium-dose ICS	Medium-dose ICS + LABA or Montelukast	High-dose ICS + LABA or Montelukast	High-dose ICS + LABA or Montelukast + Oral corticosteriods ICS
Alternative		Cromolyn or Montelukast				
	Each Step: Patient Education and Environmental Control					
Quick-Relief Medication	• SABA as needed for symptoms. Intensity of treatment depends on severity of symptoms. • With viral respiratory symptoms: SABA q 4–6 hours up to 24 hours (longer with physician consult). Consider short course of oral systemic corticosteroids if exacerbation is severe or patient has history of previous severe exacerbations. Caution: Frequent use of SABA may indicate the need to step up treatment. See text for recommendations on initiating daily long-term-control therapy.					

Children 5–11 Years of Age

	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6
	Intermittent Asthma	Persistent Asthma: Daily Medication Consult with asthma specialist if step 4 care or higher is required. Consider consultation at step 3.				
Preferred	SABA PRN	Low-dose ICS	Low-dose ICS + LABA, LTRA, or Theophylline OR Medium-dose ICS	Medium-dose ICS + LABA	High-dose ICS + LABA	High-dose ICS + LABA + Oral corticosteroids
Alternative		Cromolyn, LTRA, Nedocromil, or Theophylline		Medium-dose ICS + LTRA or Theophylline	High-dose ICS + LTRA or Theophylline	High-dose ICS + LTRA or Theophylline + oral corticosteroids
	Each Step: Patient Education, Environmental Control, and Management of Comorbidities Steps 2–4: Consider subcutaneous allergen immunotherapy for patients who have persistent, allergic asthma.					
Quick-Relief Medication	• SABA as needed for symptoms. Intensity of treatment depends on severity of symptoms: up to 3 treatments at 20-minute intervals as needed. Short course of oral systemic corticosteroids may be needed. Caution: Increasing use of SABA or use >2 days a week for symptom relief (not prevention of EIB) generally indicates inadequate control and the need to step up treatment.					

Notes

- The stepwise approach is meant to assist, not replace, the clinical decisionmaking required to meet individual patient needs.
- If an alternative treatment is used and response is inadequate, discontinue it and use the preferred treatment before stepping up.
- If clear benefit is not observed within 4–6 weeks, and patient's/family's medication technique and adherence are satisfactory, consider adjusting therapy or an alternative diagnosis.
- Studies on children 0–4 years of age are limited. Step 2 preferred therapy is based on Evidence A. All other recommendations are based on expert opinion and extrapolation from studies in older children.
- Clinicians who administer immunotherapy should be prepared and equipped to identify and treat anaphylaxis that may occur.

Key: Alphabetical listing is used when more than one treatment option is listed within either preferred or alternative therapy. ICS, inhaled corticosteroid; LABA, inhaled long-acting beta$_2$-agonist; LTRA, leukotriene receptor antagonist; oral corticosteroids, oral systemic corticosteroids; SABA, inhaled short-acting beta$_2$-agonist

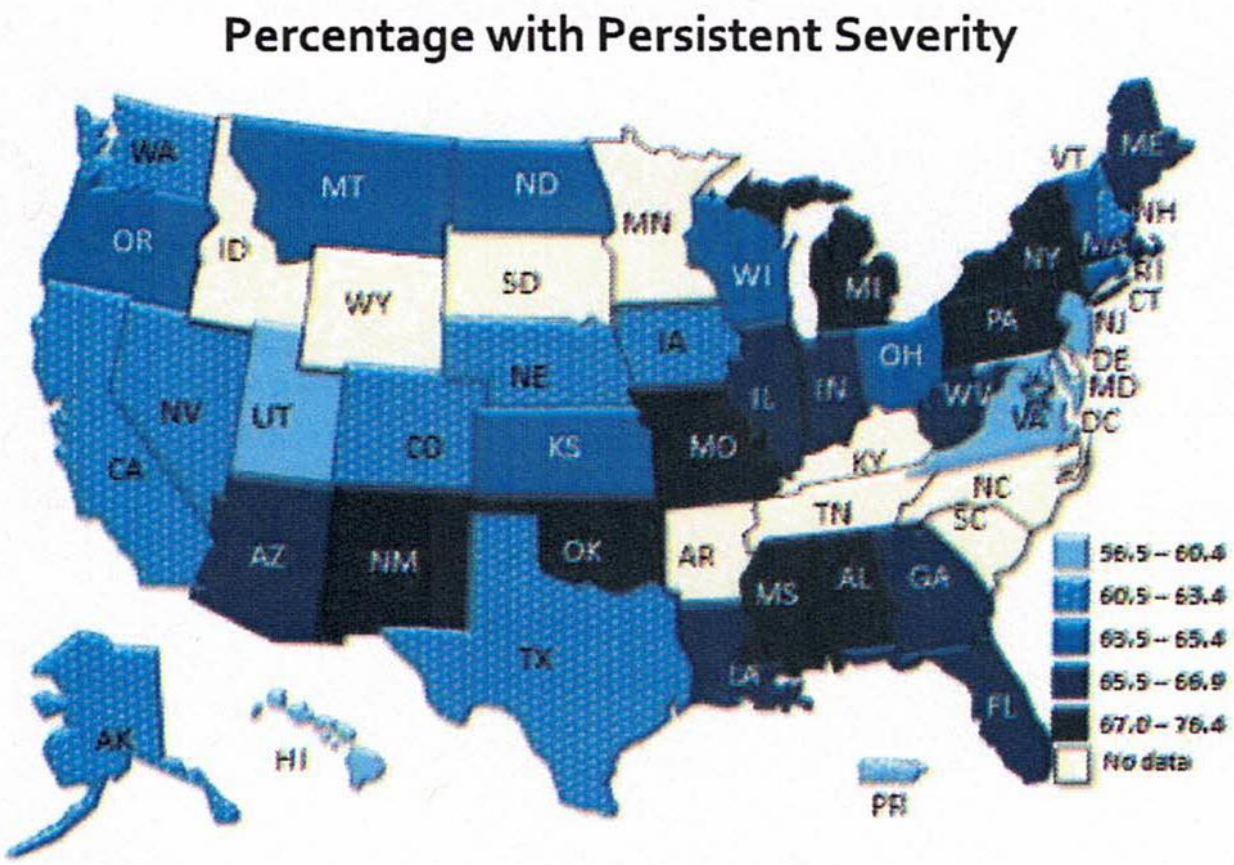
Notes

- The stepwise approach is meant to assist, not replace, the clinical decisionmaking required to meet individual patient needs.
- If an alternative treatment is used and response is inadequate, discontinue it and use the preferred treatment before stepping up.
- Theophylline is a less desirable alternative due to the need to monitor serum concentration levels.
- Steps 1 and 2 medications are based on Evidence A. Step 3 ICS and ICS plus adjunctive therapy are based on Evidence B for efficacy of each treatment and extrapolation from comparator trials in older children and adults—comparator trials are not available for this age group; steps 4–6 are based on expert opinion and extrapolation from studies in older children and adults.
- Immunotherapy for steps 2–4 is based on Evidence B for house-dust mites, animal danders, and pollens; evidence is weak or lacking for molds and cockroaches. Evidence is strongest for immunotherapy with single allergens. The role of allergy in asthma is greater in children than adults.
- Clinicians who administer immunotherapy should be prepared and equipped to identify and treat anaphylaxis that may occur.

Key: Alphabetical listing is used when more than one treatment option is listed within either preferred or alternative therapy. ICS, inhaled corticosteroid; LABA, inhaled long-acting beta$_2$-agonist; LTRA, leukotriene receptor antagonist; SABA, inhaled short-acting beta$_2$-agonist

Asthma Severity among Adults with Current Asthma

Asthma severity determines type and duration of treatment

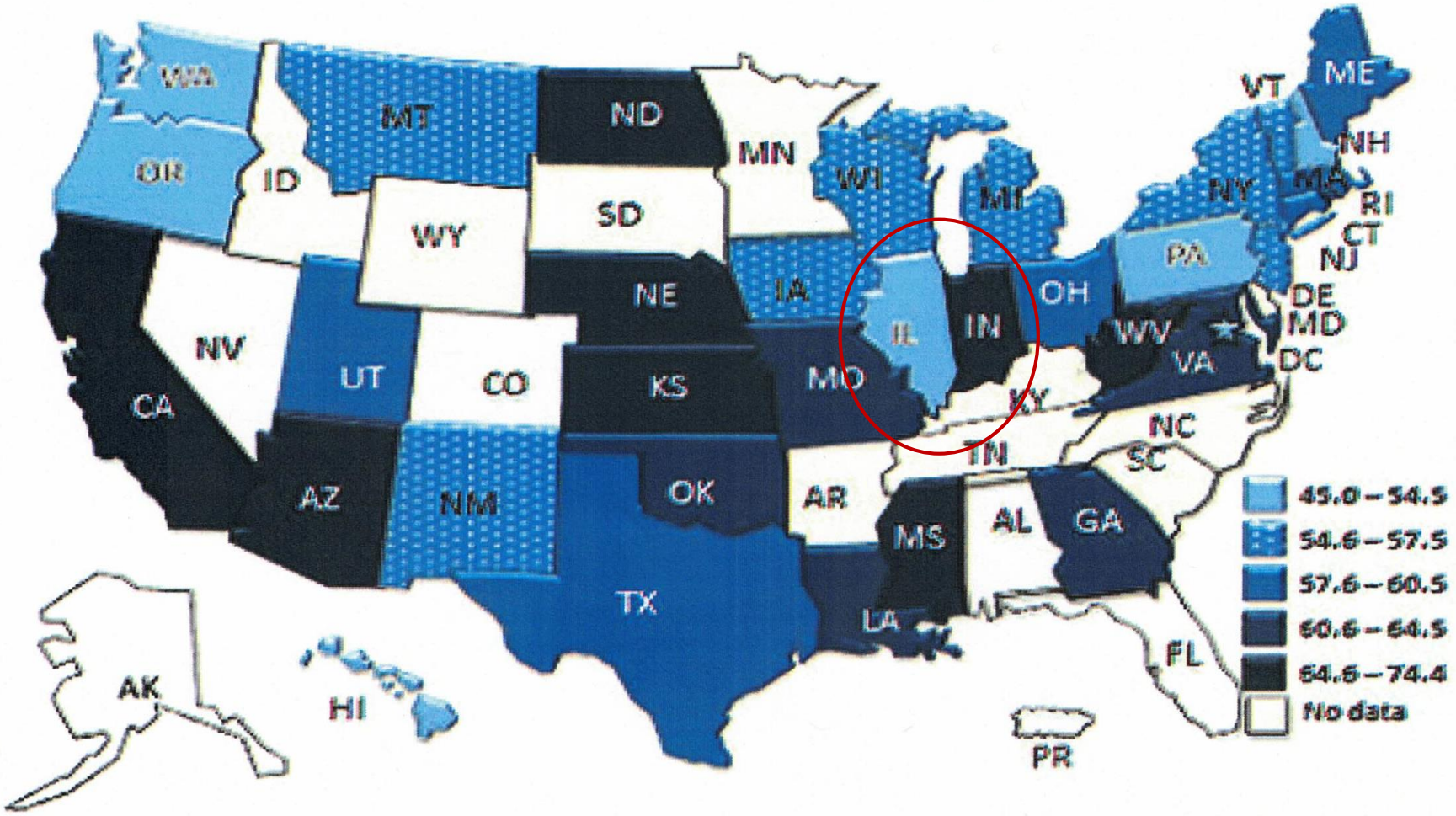


Asthma Severity among Adults with Current Asthma						
	Intermittent Severity			Persistent Severity		
STATE	%	95% CI[§]	SE[**]	%	95% CI[§]	SE[**]
U.S. Total[¶]	35.2	34.1-36.2	0.53	64.8	63.8-65.9	0.53
HI	43.0	39.0-47.2	2.09	57.0	52.8-61.0	2.09
IL	33.9	29.1-39.0	2.54	66.1	61.0-70.9	2.54
IN	33.1	29.7-36.7	1.80	66.9	63.3-70.3	1.80
IA	38.9	34.5-43.5	2.31	61.1	56.5-65.5	2.31
KS	36.2	33.1-39.3	1.59	63.8	60.7-66.9	1.59

Asthma Severity among Children with Current Asthma

Asthma severity determines type and duration of treatment

Percentage with Persistent Severity



	Asthma Severity among Children with Current Asthma	
STATE	**Intermittent Severity%**	**Persistent Severity%**
HI	52.6	57.4
IL	46.4	53.6
IN	34.9	65.1

Risk Factors That Can Worsen Asthma or Influence Asthma Rates

A risk factor is any attribute, characteristic or exposure of an individual that increases the likelihood of developing a disease, like asthma. These are the top risk factors for asthma that may influence the ranking of outcomes for cities in this report:

- Poverty
- Lack of health insurance
- Air quality
- Pollen count
- Controller medication use
- Quick-relief medication use
- Access to asthma specialists
- Anti-smoking laws

ASTHMA TRIGGERS

Asthma triggers

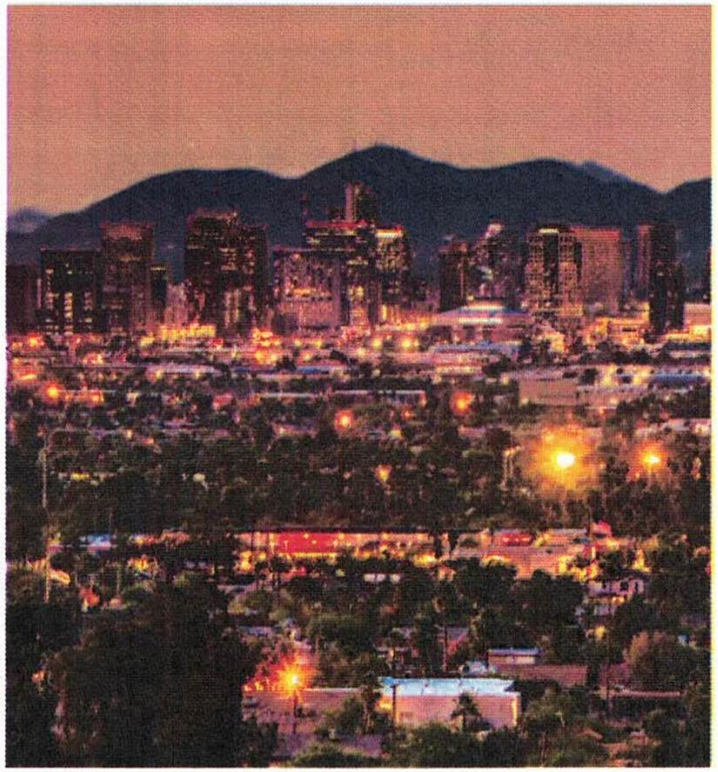
The cause of asthma is unknown, but people with asthma have inflamed airways, which cause them to be more reactive and sensitive to triggers.

Common triggers include:

- Allergens, such as pollen, pet hair or dander
- Changes in weather, usually cold weather
- Chemical irritants
- Cockroaches, dust mites and other pests
- Exercise
- Mold
- Outdoor air pollutants and ozone
- Respiratory infections, such as the common cold
- Stress
- Tobacco and wood smoke

These cities have the worst air quality, which is a risk factor that worsens asthma:

Worst Air Quality Ranking	Metropolitan Area	Overall Asthma Capital National Ranking
1	Phoenix, AZ	47
2	Bakersfield, CA	85
3	Fresno, CA	75
4	Los Angeles, CA	92
5	Riverside, CA	86
6	Sacramento, CA	65
7	San Jose, CA	97
8	Stockton, CA	61
9	Chicago, IL	43
10	Allentown, PA	27
11	Pittsburgh, PA	42
12	El Paso, TX	94
13	Ogden, UT	80
14	Provo, UT	93
15	Salt Lake City, UT	70



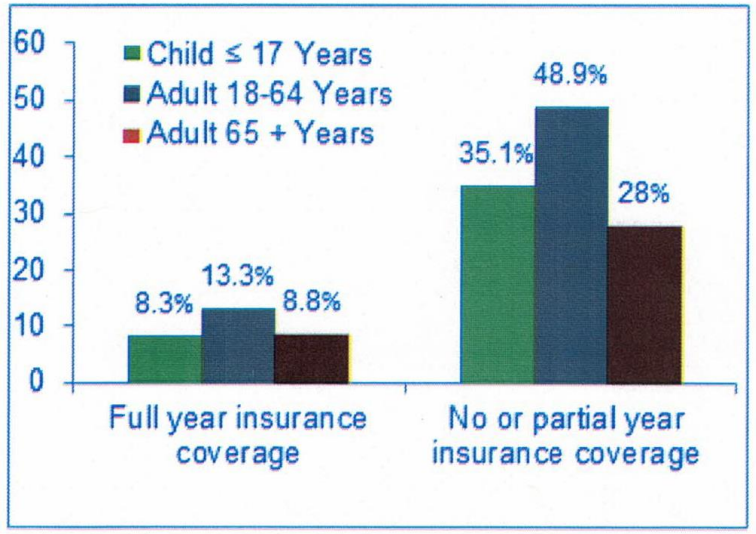
Phoenix, AZ

Insurance coverage reduces, but does not eliminate, cost barriers for asthma care.

National estimates show that Americans with asthma are more likely to have health insurance than those without asthma. Among those with asthma, more children had health insurance coverage for the full year than adults. Coverage for children ranged from 89.3% in Arizona to 99.9% in Massachusetts and for adults from 77.8% in Texas to 96.7% in the District of Columbia.

Both children and adults with asthma report cost barriers to health care, including not being able to afford asthma medication, to see a primary care doctor or asthma specialist. More adults aged 18-64 years report cost barriers, compared to children or adults aged 65 + years. For all age categories, the proportion of those reporting cost barriers is higher for those with no or partial year coverage, compared to those with full year coverage.

Percentage with cost barriers, by age and insurance coverage status, among persons with active asthma, Asthma Call-back Survey, 20 Areas, 2006-2010



Source: CDC's Asthma Call-back Survey 2006-2010; 20 areas with 5 years of adult and child data. Estimates represent 5 year averages

Percentage with Insurance among People with Active Asthma by Area and Age

Area	Age*	Full Year Coverage	No/Partial Year Coverage
		%	%
Indiana	Child	96.9	3.1
	Adult	84.0	16.0

These cities have the highest rates of poverty:

Poverty Ranking	Metropolitan Area	Overall Asthma Capital National Ranking
1	McAllen, TX	100
2	Richmond, VA	2
3	Augusta, GA	31
4	Fresno, CA	75
5	Philadelphia, PA	4
6	New Orleans, LA	25
7	Detroit, MI	16
8	El Paso, TX	94
9	Bakersfield, CA	85
10	Baltimore, MD	33
11	Jackson, MS	38
12	Memphis, TN	57
13	Baton Rouge, LA	89
14	Toledo, OH	10
15	Milwaukee, WI	14
16	Boston, MA	11
17	Indianapolis, IN	37
18	Youngstown, OH	7
19	Des Moines, IA	84
20	Washington, DC	23

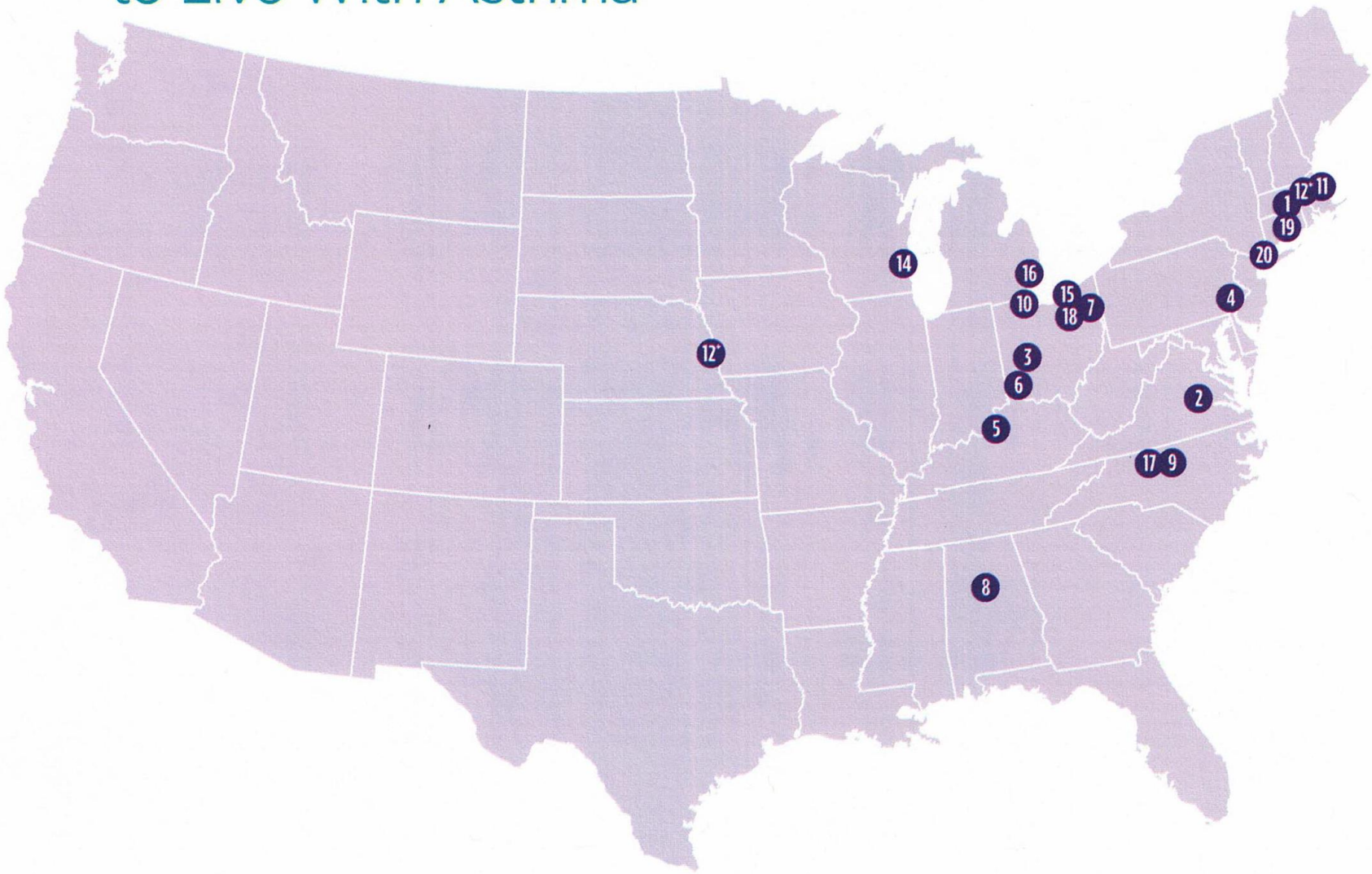
NATIONAL RANKINGS

■ Worse Than Average ▲ Average ● Better Than Average

(Factors are not weighted equally)

2018 National Rankings *(*Tie)*	Overall	Metropolitan Area	Total Score *(Avg. 61.84)*	Subtotal: Estimated Asthma Prevalence	Subtotal: Crude Death Rate for Asthma	Subtotal: ER Visits for Asthma
33	▲	Baltimore, MD	66.05	▲	▲	▲
34	▲	Oklahoma City, OK	65.91	▲	▲	▲
35	▲	Providence, RI	65.75	■	●	▲
36	▲	Tucson, AZ	65.70	▲	■	▲
37	▲	Indianapolis, IN	65.66	▲	▲	▲
38	▲	Jackson, MS	65.47	▲	■	▲
39	▲	Portland, OR	65.45	■	▲	●
40	▲	Buffalo, NY	65.44	▲	▲	▲
41	▲	Kansas City, MO	65.42	▲	▲	▲
42	▲	Pittsburgh, PA	65.21	■	▲	▲
43	▲	Chicago, IL	64.70	▲	■	▲
44	▲	Tulsa, OK	64.65	▲	▲	▲

The Top 20 Most Challenging Places to Live With Asthma



Medications in Asthma

ICS- (Inhaled Corticosteroids) –Qvar, Pulmicort, Alvesco, Aerobid, Arnuity, Flovent, Asmanex, Asmacort,

ICS/LABA- (Long Acting Beta Agonist) Symbicort, Breo,Advair, , AirDuo,Dulera

LABA- Foradil, Serevent, Brovana, Performist, Striverdi

SABA-(Short Acting Beta Agonist) Albuterol-(Proventil, Proair, Ventolin), Levalbuterol-(Xopenex)

Medication in Asthma

LAMA- Spiriva

SAMA-(Short Acting Muscarinic Antagonist)- Atrovent/Ipratroprium

Theophylline

Leukotriene Modifiers-Singuliar, Accolate,Zyflo

Immunomodulaters- Fasenra, Nucala, Xoliar, Cinqair

Medications in Asthma/COPD

LABA/LAMA(Long Acting Muscarinic Antagonist)-Anoro, Bevespi, Utibron, Stiolto

SABA/SAMA –Combivent Respimat

LAMA-Spiriva, Tudorza, Seebri, Incruse

ICS/LABA/LAMA- Trelegy

Phosphodiesterase Inhibitor - Daliresp

Inhaler Techniques

The following code is appropriate for Demonstration and/or evaluation of inhaler techniques and also includes demonstration of flow-operated inhaled devices such as flutter valves. The code may only be used once per day. This cannot be billed at the same time/ same visit as 94640. These can be billed on the same day, but must be a separate patient visit.

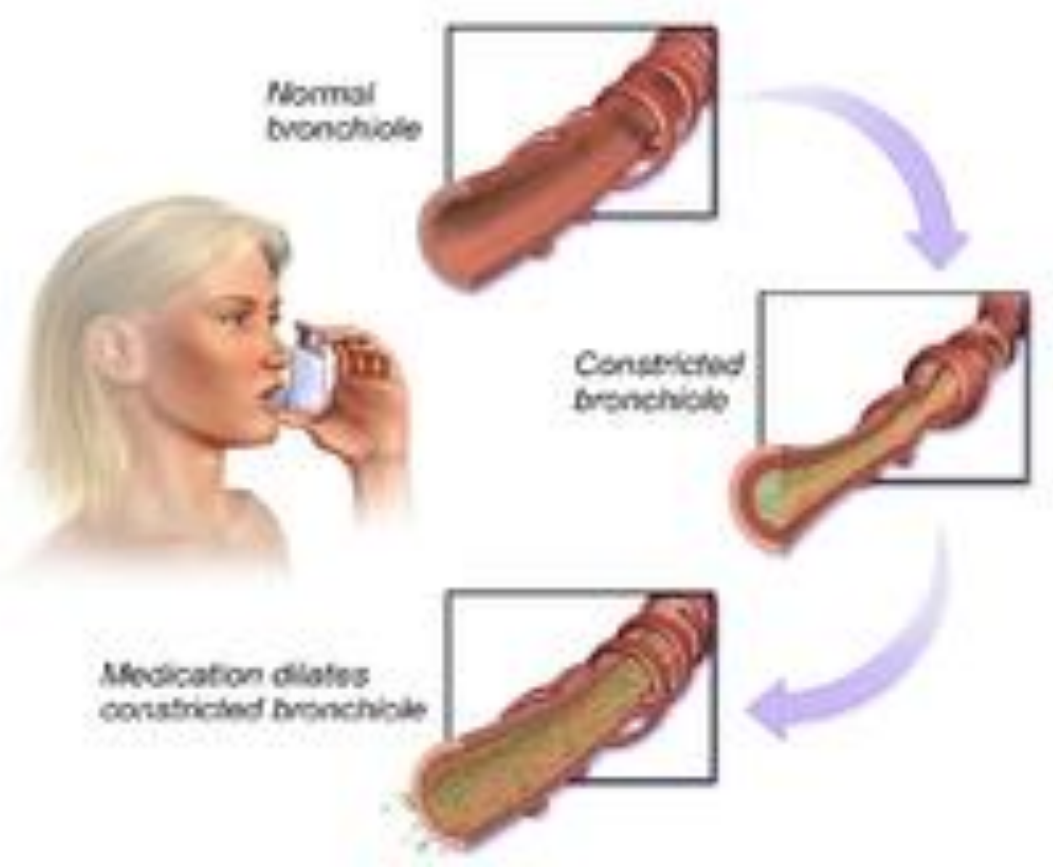
- **94664** – Demonstration and/or evaluation of patient utilization of an aerosol generator, nebulizer, metered dose inhaler or IPPB device can be used demonstrating (teaching) patients to use an aerosol generating device property.

Peak Flow Meter

A peak flow meter is covered as a supply when furnished in the physician office setting for home use by the patient.

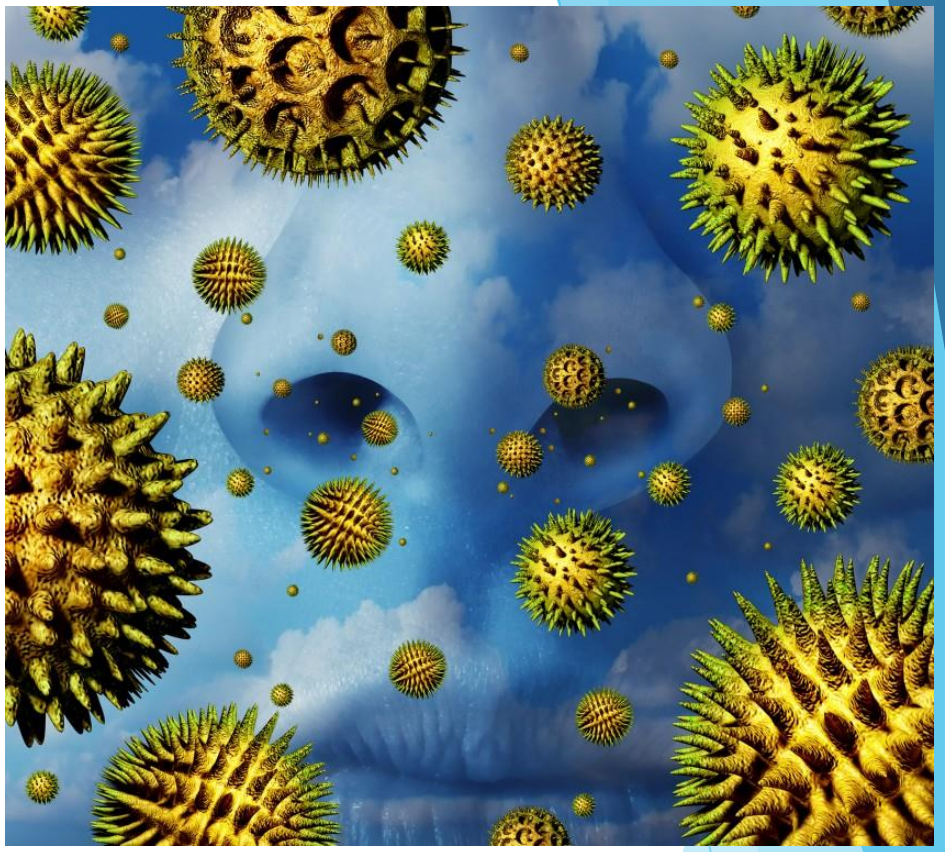
- **HCPCS A4614** – Peak expiratory flow rate meter, hand held

Asthma Inhalers Response



TAKE ACTION: Steps you can take to prevent or control asthma

- Monitor your level of control with a validated control test such as the Asthma Control Test™ or the Asthma Control Questionnaire©.
- During routine medical visits, talk with your health care provider about your asthma symptoms, triggers, medications and side effects.
- Identify and avoid asthma triggers that can cause symptoms or attacks.
- Avoid smoking and being around others who are smoking.
- Take medications as prescribed by your health care provider.
- Work with your health care provider to create an Asthma Action Plan—these plans include information concerning daily treatment, medications, short and long-term control measures and explain when to seek medical treatment.
- Ensure students and employees have immediate access to quick-relief medications.
- Encourage school staff, childcare providers and employers to maintain asthma friendly environments, such as: No-Idle Zones and Ozone Action Days.



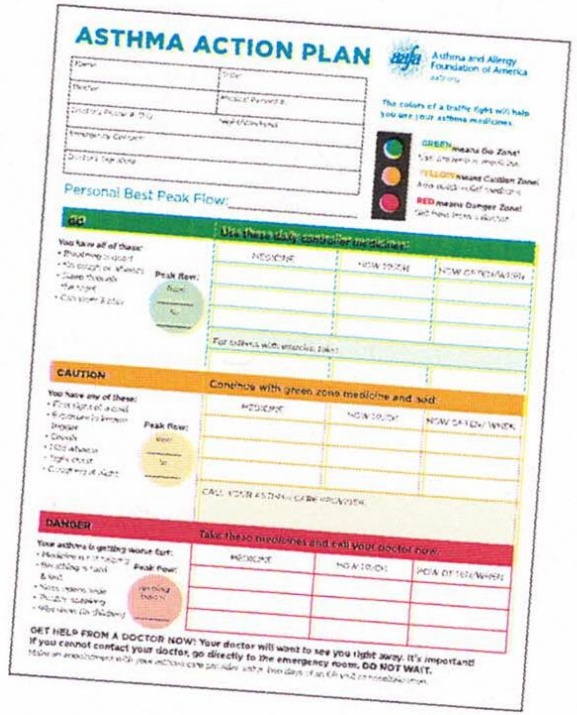
Asthma Health Outcomes

If you ever feel your life or your child's life is in danger, seek emergency care immediately. An asthma action plan can help you know when you are in danger. It uses red, yellow, green zones for your symptoms. If you are in the red zone, it is a medical emergency. AAFA has an action plan template you can use to discuss your treatment plan with your health care provider. Visit **aafa.org/actionplan** to download it.

GREEN means Go Zone!
Use preventive medicine.

YELLOW means Caution Zone!
Add quick-relief medicine.

RED means Danger Zone!
Get help from a doctor.


ASTHMA ACTION PLAN

Asthma and Allergy Foundation of America

Personal Best Peak Flow:

GO

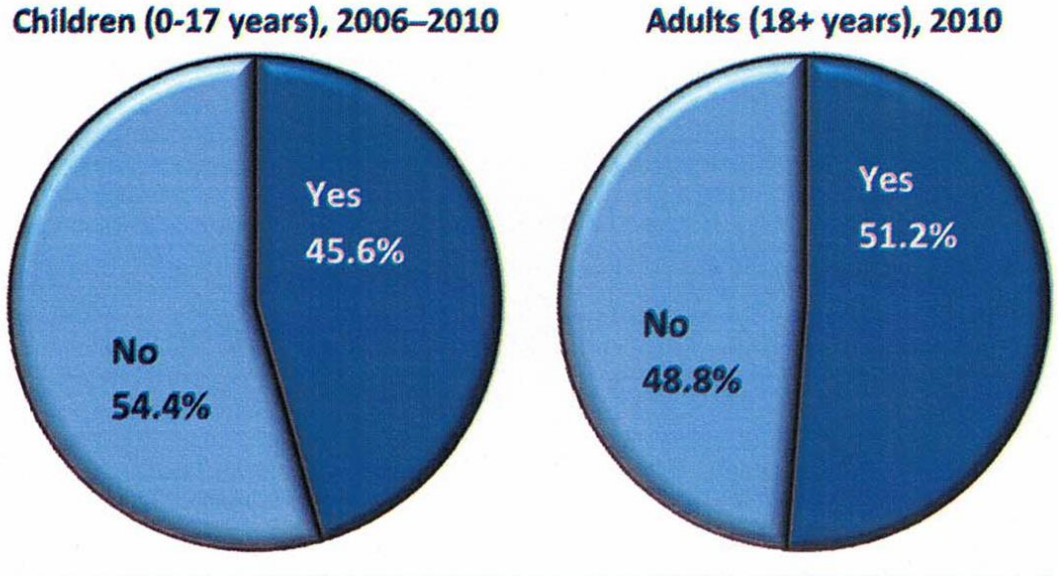
CAUTION

DANGER

Influenza Hospital Discharge Data, 2009-2010[†10]

- 1 in 4 flu hospitalizations involved individuals with asthma
- 2,557 ED visits were from asthma and flu
- 567 hospitalizations were from asthma and flu

Figure 1. Percent of influenza vaccination among people with asthma*, Indiana [9]



Increased risk of complications

Having asthma does not increase the chance of getting the flu, but it does increase the risk of flu-related complications, even if asthma is well-controlled.[3,4]

- Asthma causes airways to swell and be more reactive and sensitive.
- Influenza further increases airway inflammation, which can exacerbate asthma.

Flu vaccine recommendations[5]

Who?

- All persons 6 months of age and older

What?

- People with asthma or other chronic lung disorders should be given the inactivated (killed) flu virus as a **SHOT** and not the nasal spray/mist.

When?

- Every influenza season
- Children between the ages of 6 months and 8 years may need two doses to be protected.

QUESTIONS?????

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