Office Management of Pediatric Asthma in 2012

Putting Guidelines into Practice

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Children's National Medical Center

IMPACT DC
Improving Pediatric Asthma Care in the District of Columbia

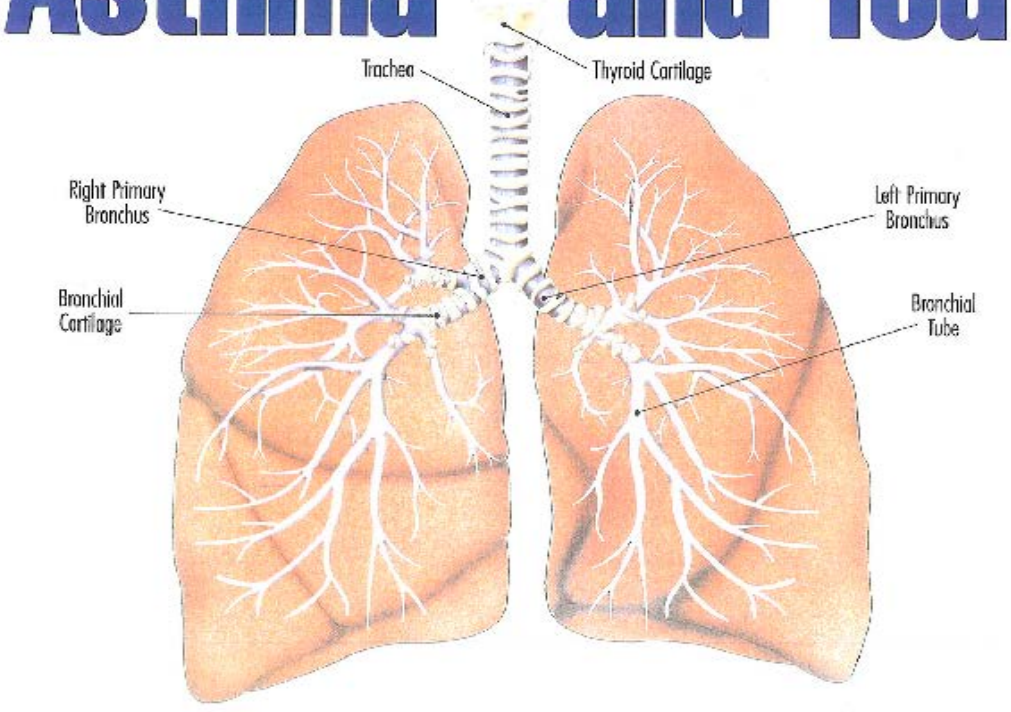
Conflicts of Interest

- None

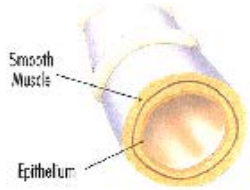
Outline

- Asthma – Focus on the Control of Inflammation
- Asthma Epidemiology
  - Disparities in outcome
- National Asthma Guidelines
  - “GIP Priorities”
- Case Presentations

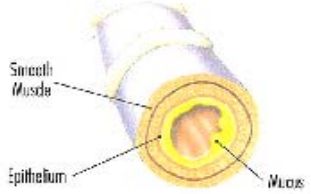
Asthma and You



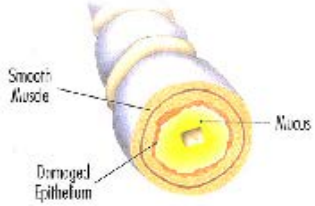
Healthy Tube



Mild Asthma



Severe Asthma



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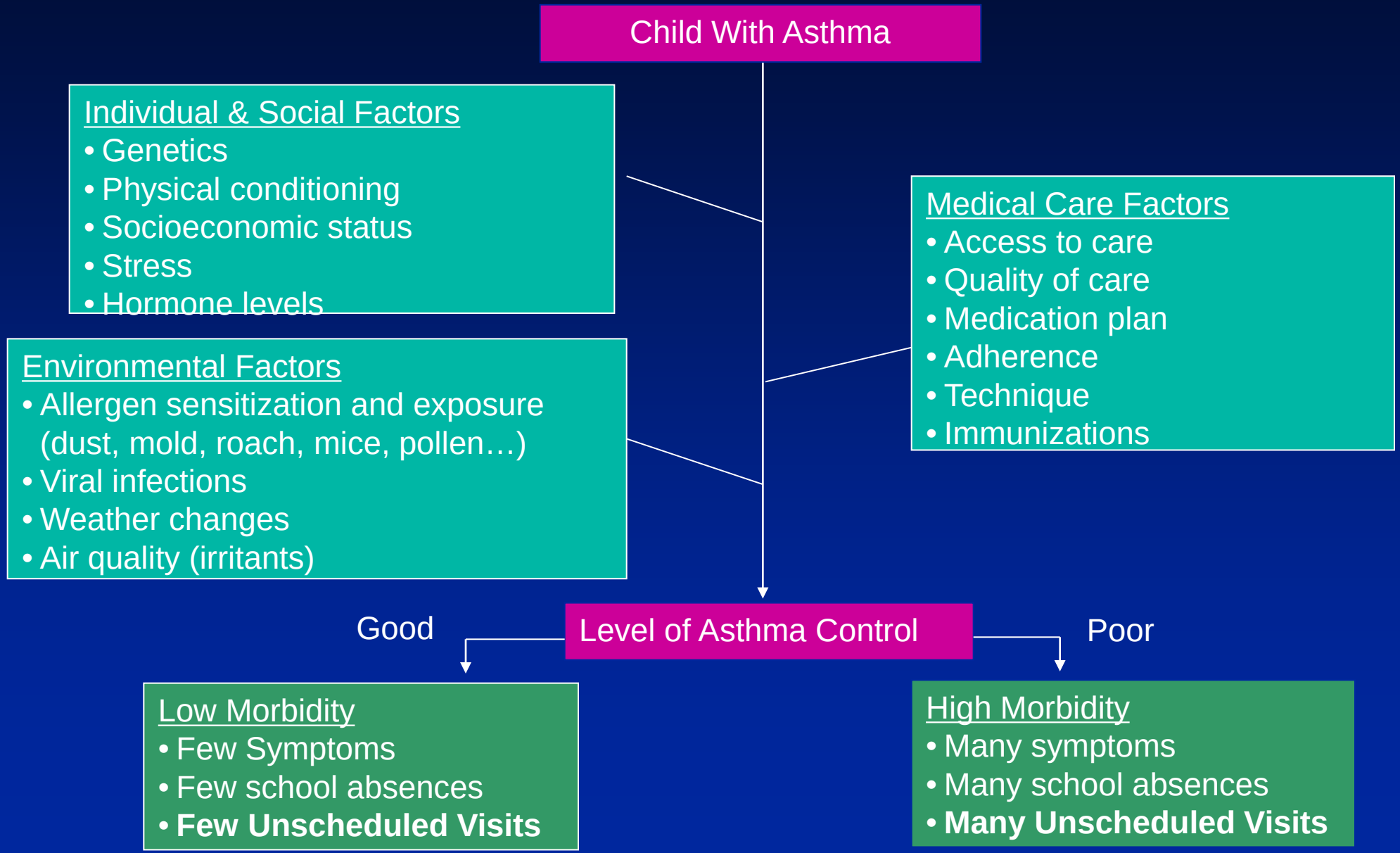
Conceptual Model of Asthma



Challenging Groups

- Young patient with wheezing
  - Virally induced
- Adolescent patient
  - Difficult to control
  - Non-adherent
  - Poor perceivers
- Obese patient with asthma
  - Adipose tissue as inherently inflammatory
  - Perceive symptoms as worse

Importance of Correct Diagnosis

- All that wheezes is not asthma
- Red flags
- Clinical patterns

Today…..

- *The straight-forward child with straight-forward asthma!*

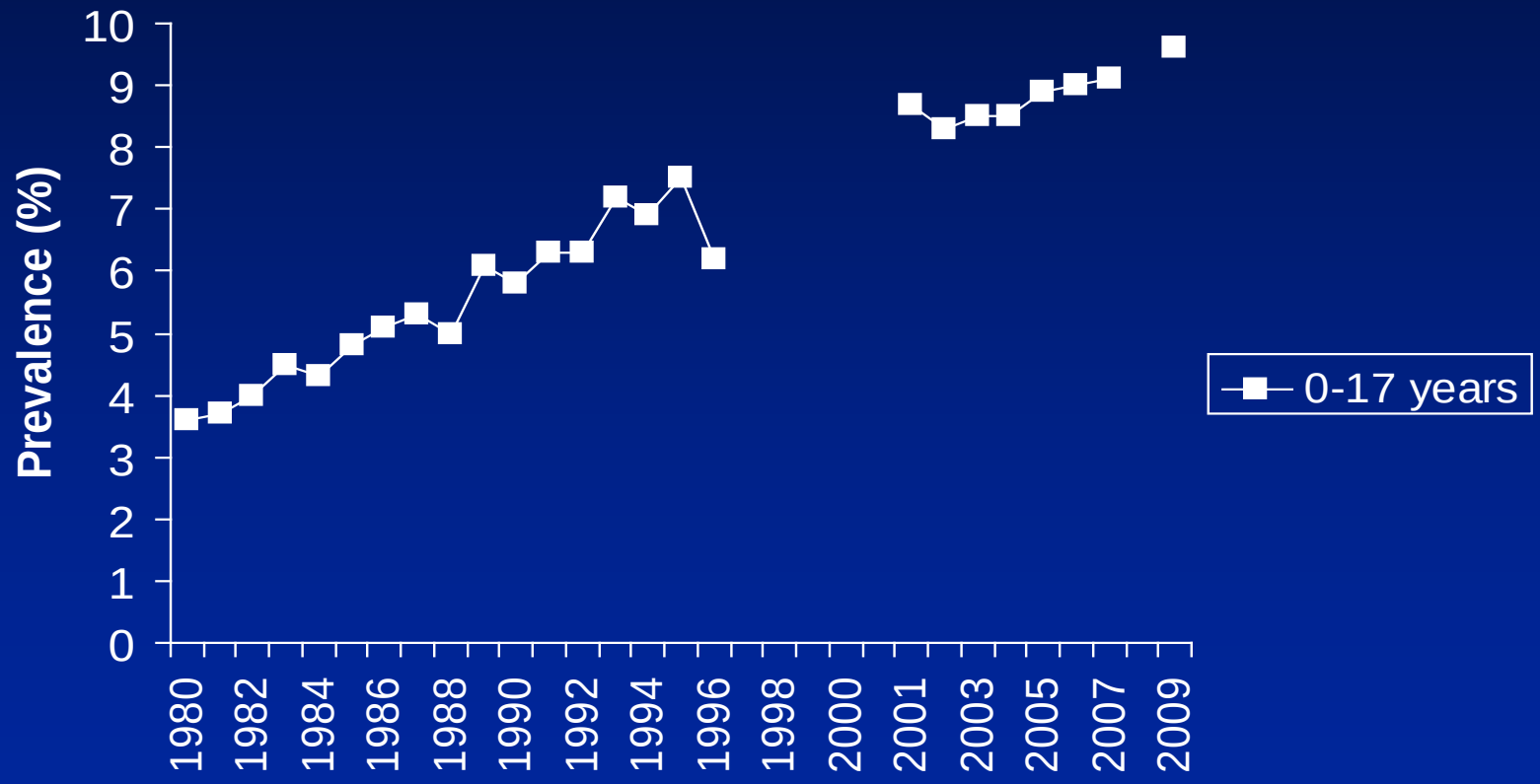
National Experience with Pediatric Asthma

- 7.1 million children <18y living with asthma in the US in 2009*
  - 3.4 million ambulatory visits *(2% of total)*
  - 640,000 ED visits***
  - 157,000 hospital admissions***
  - 10.5 million annual lost school days*

*National Health Interview Survey
**National Ambulatory Medical Care Survey
***National Hospital Medical Care Survey

Prevalence of Pediatric Asthma

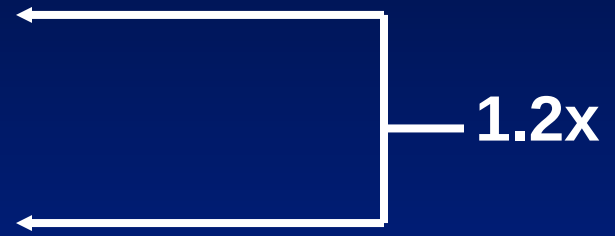
MMWR. December 2011



Prevalence of Asthma, 2004-2005

0-17y, inclusive

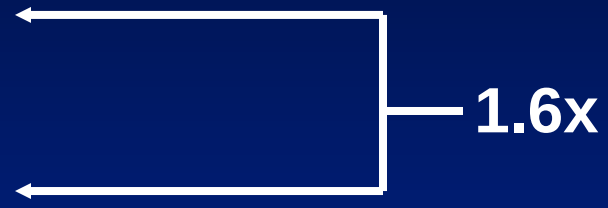
• US	• 8.9%
• Maryland	• 10.8%
• DC	• 10.3%
• Virginia	• 8.7%



Prevalence of Asthma, 2004-2005

0-17y, inclusive

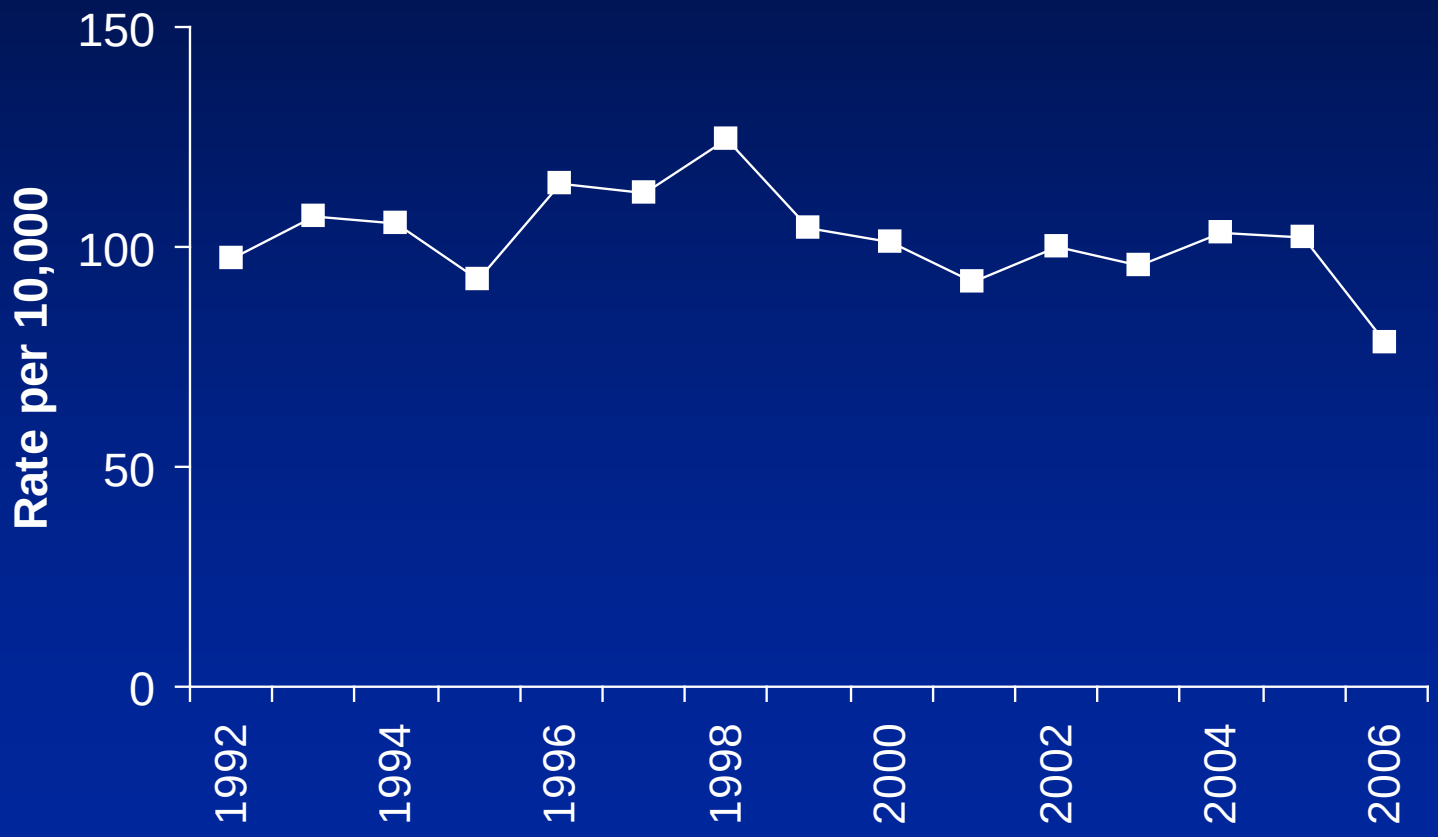
Black	12.8%
White	7.9%
Native American	9.9%
Hispanic	7.8%
Puerto Rican	19.2%
Mexican	6.4%



Akinbami L. Pediatrics 2009.

Pediatric ED Visits for Asthma

0-17y, inclusive



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Pediatric ED Visit Rates for Asthma

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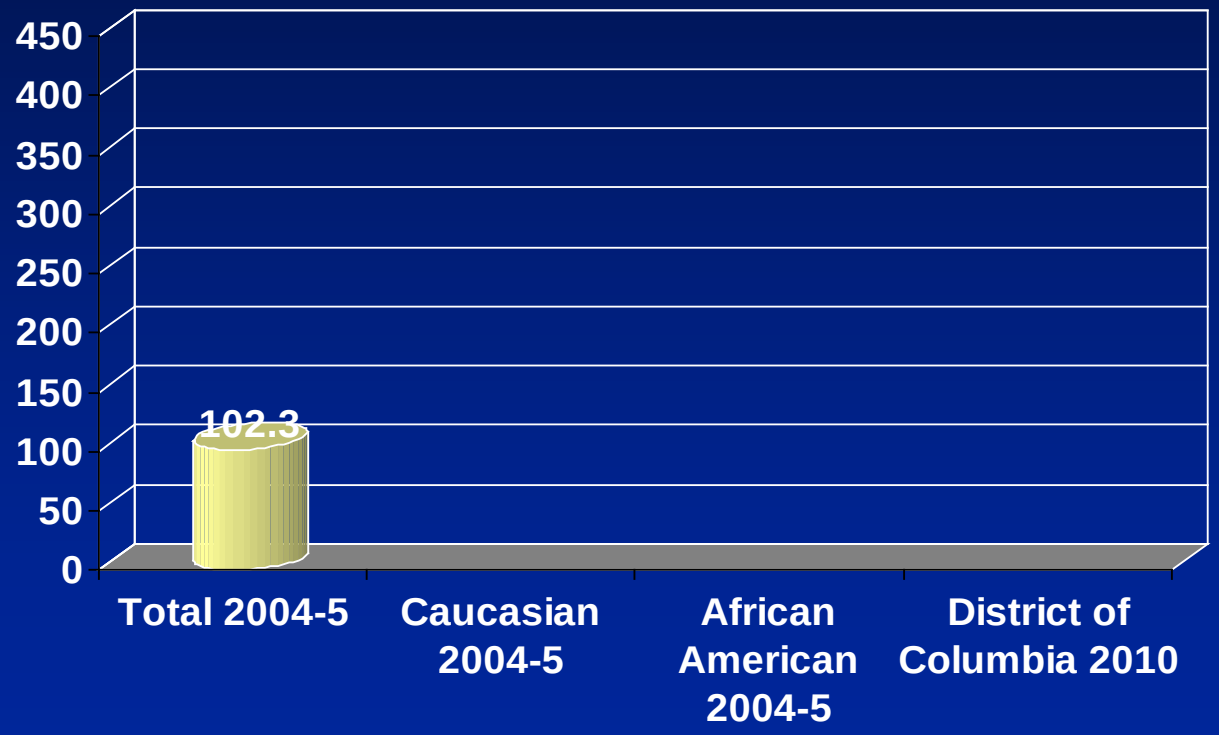

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IMPACT DC, 2012.

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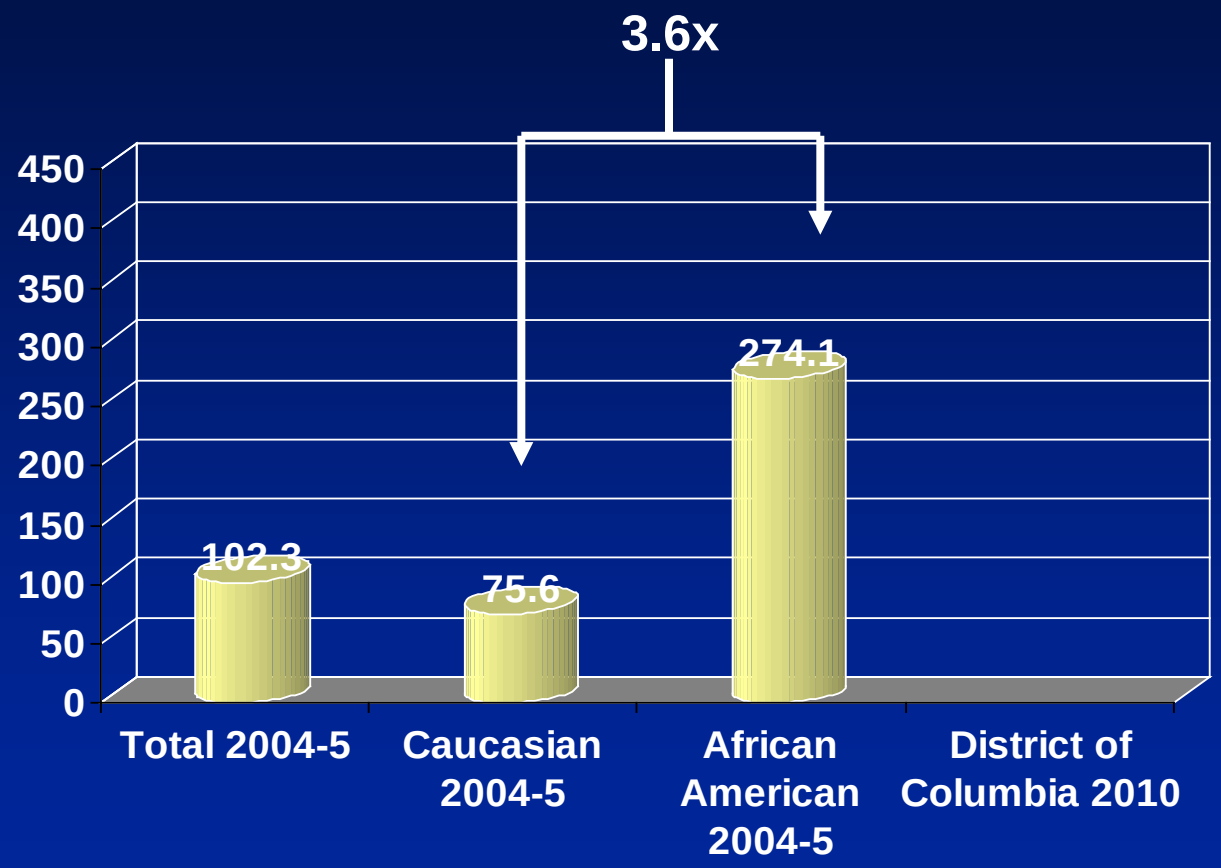

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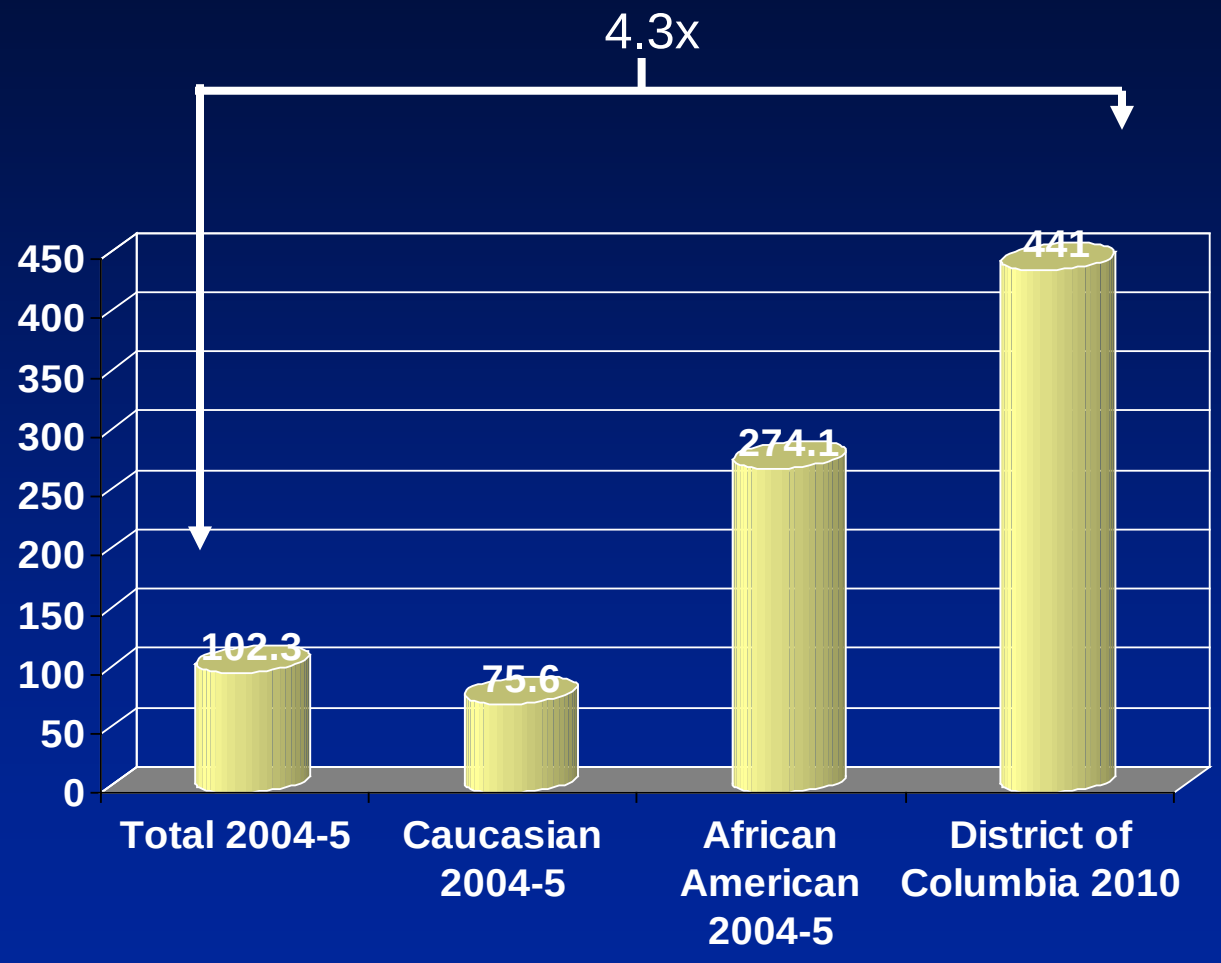

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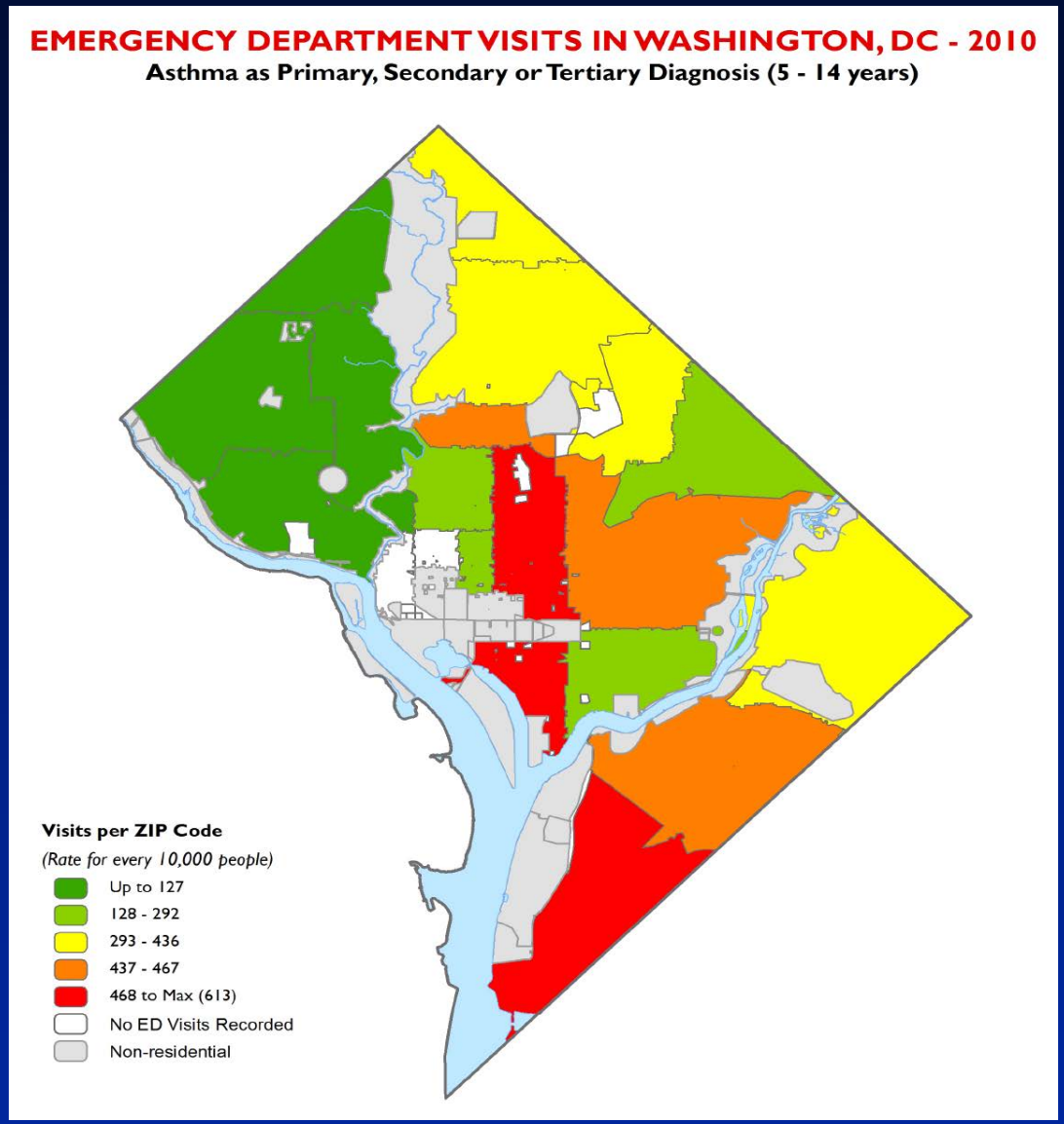
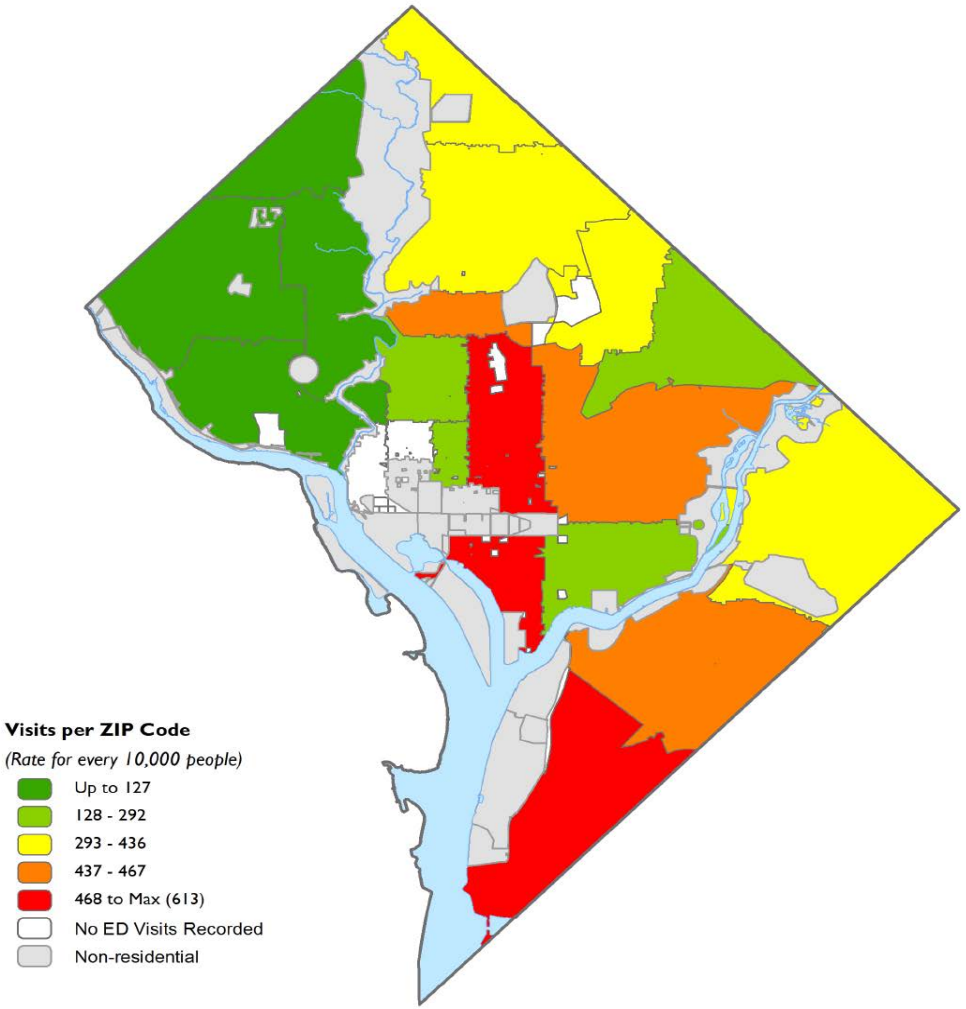


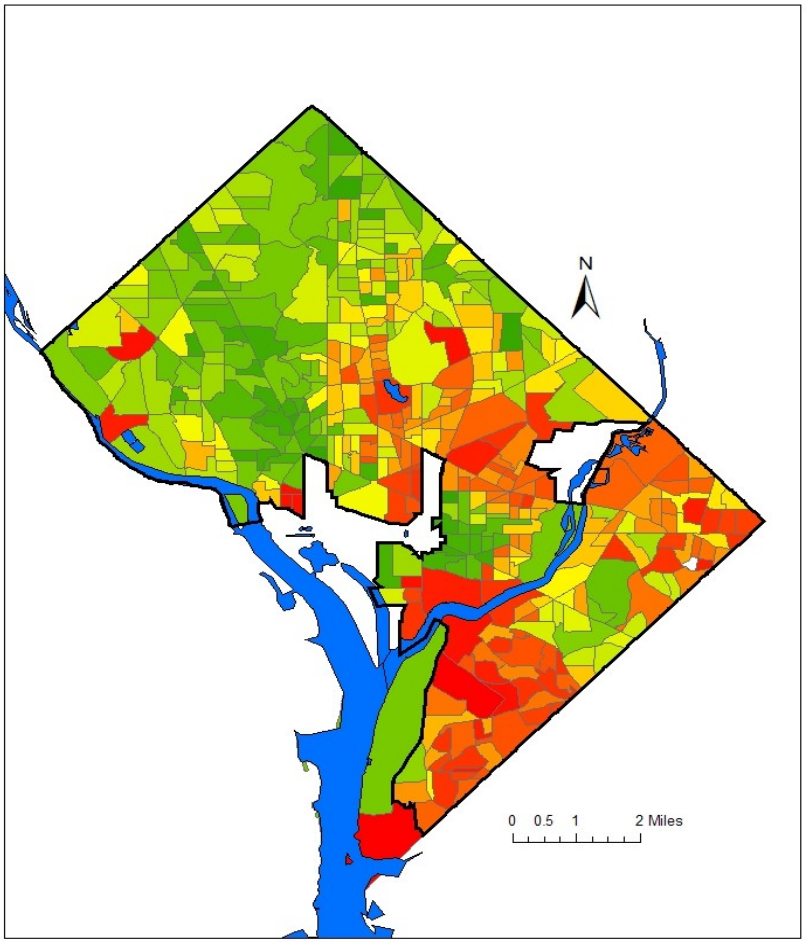
>10 fold Difference in Rate

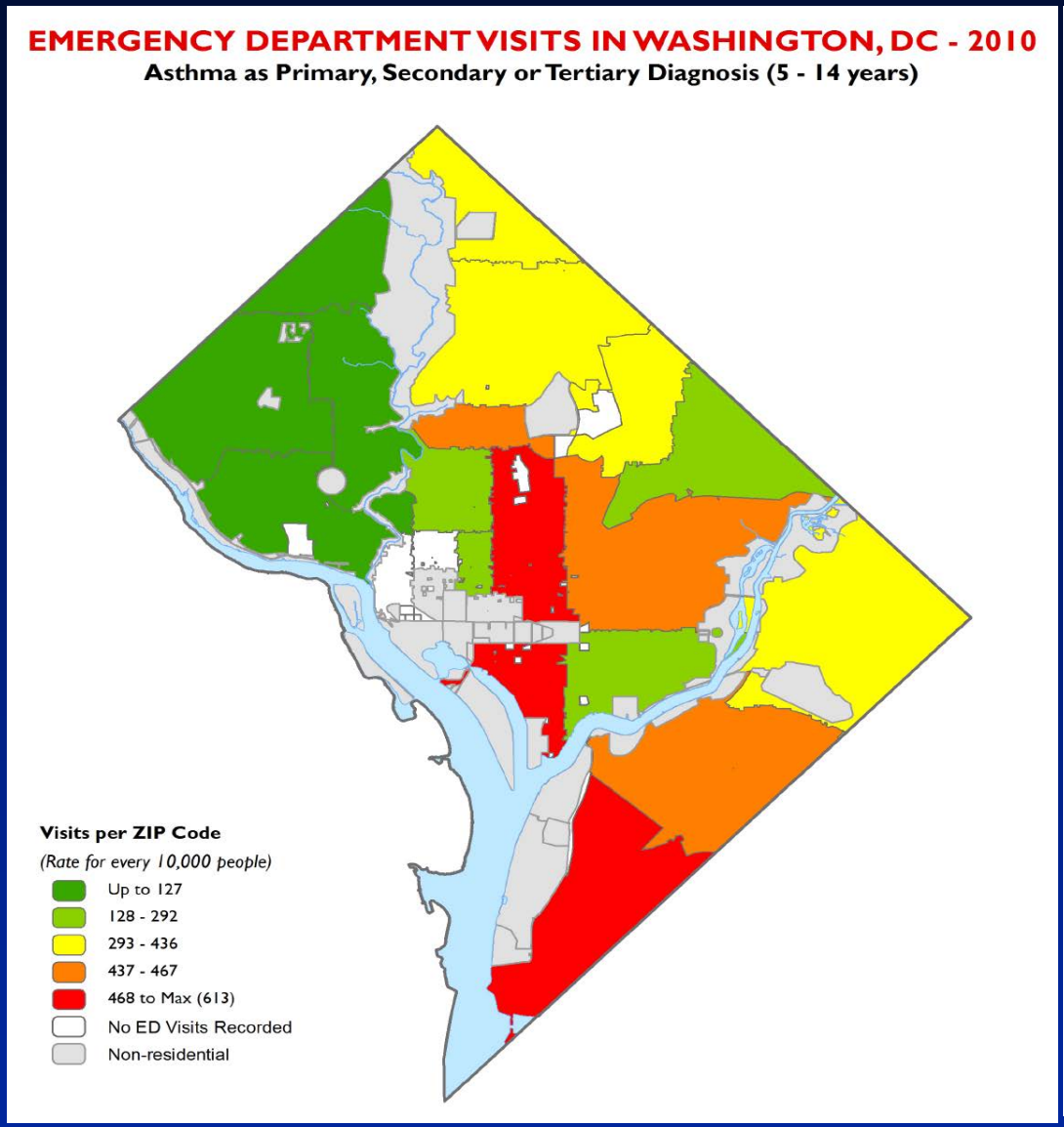
EMERGENCY DEPARTMENT VISITS IN WASHINGTON, DC - 2010

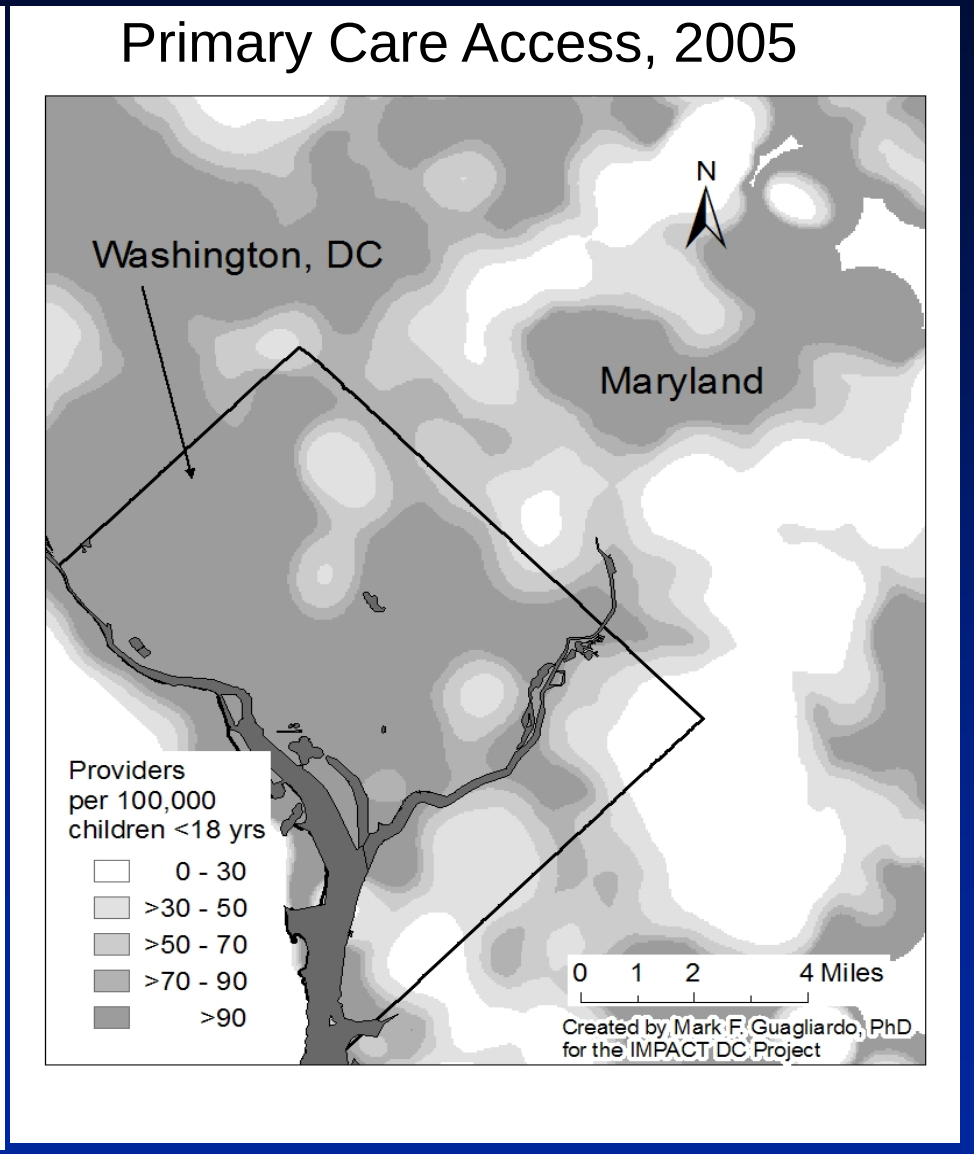
Asthma as Primary, Secondary or Tertiary Diagnosis (5 - 14 years)

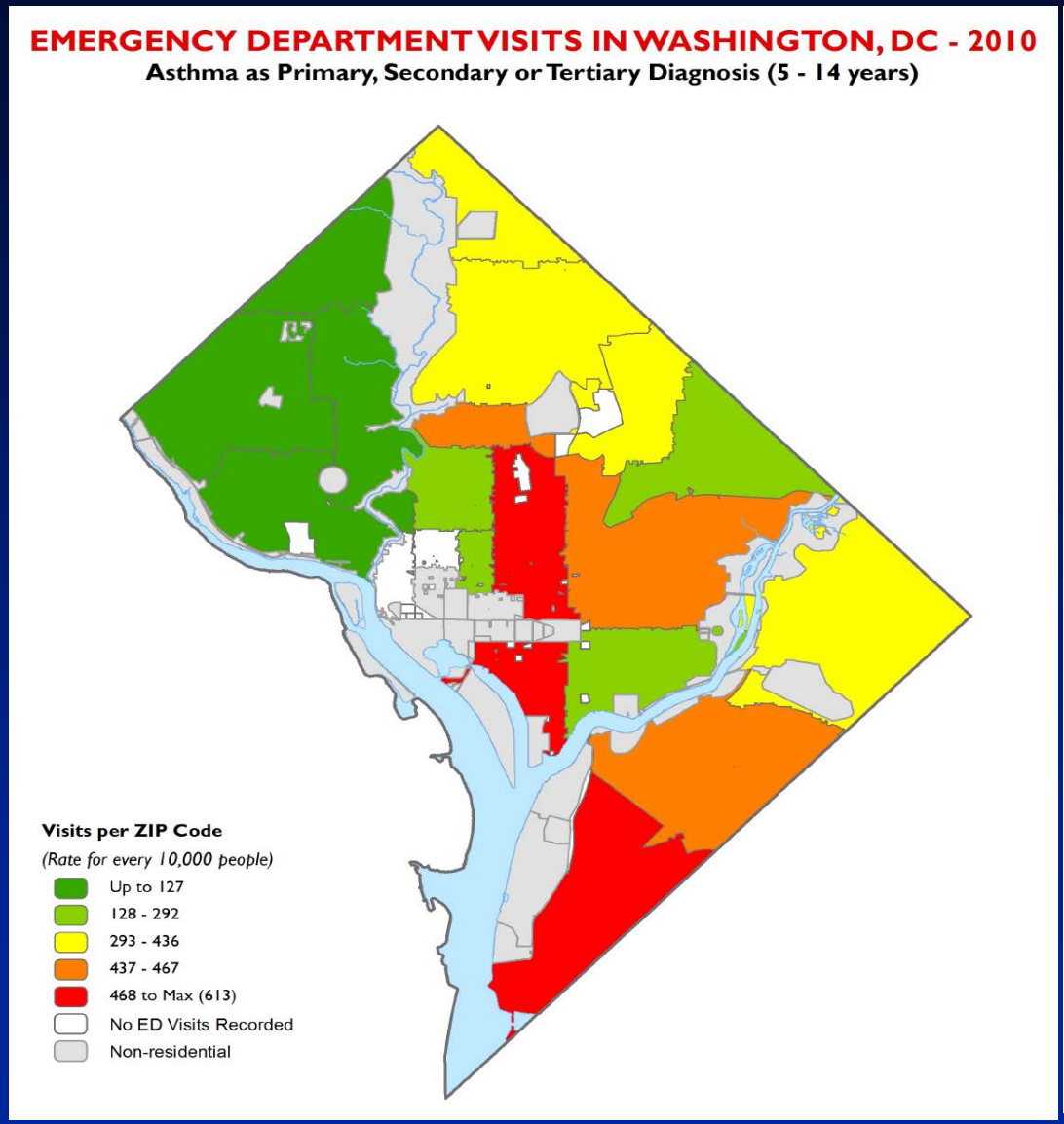


Poverty in DC, 2000




EMERGENCY DEPARTMENT VISITS IN WASHINGTON, DC - 2010
Asthma as Primary, Secondary or Tertiary Diagnosis (5 - 14 years)
Visits per ZIP Code
(Rate for every 10,000 people)
Up to 127
128 - 292
293 - 436
437 - 467
468 to Max (613)
No ED Visits Recorded
Non-residential


Primary Care Access, 2005
N
Washington, DC
Maryland
Providers per 100,000 children <18 yrs
0 - 30
>30 - 50
>50 - 70
>70 - 90
>90
0 1 2 4 Miles
Created by Mark F. Guagliardo, PhD for the IMPACT DC Project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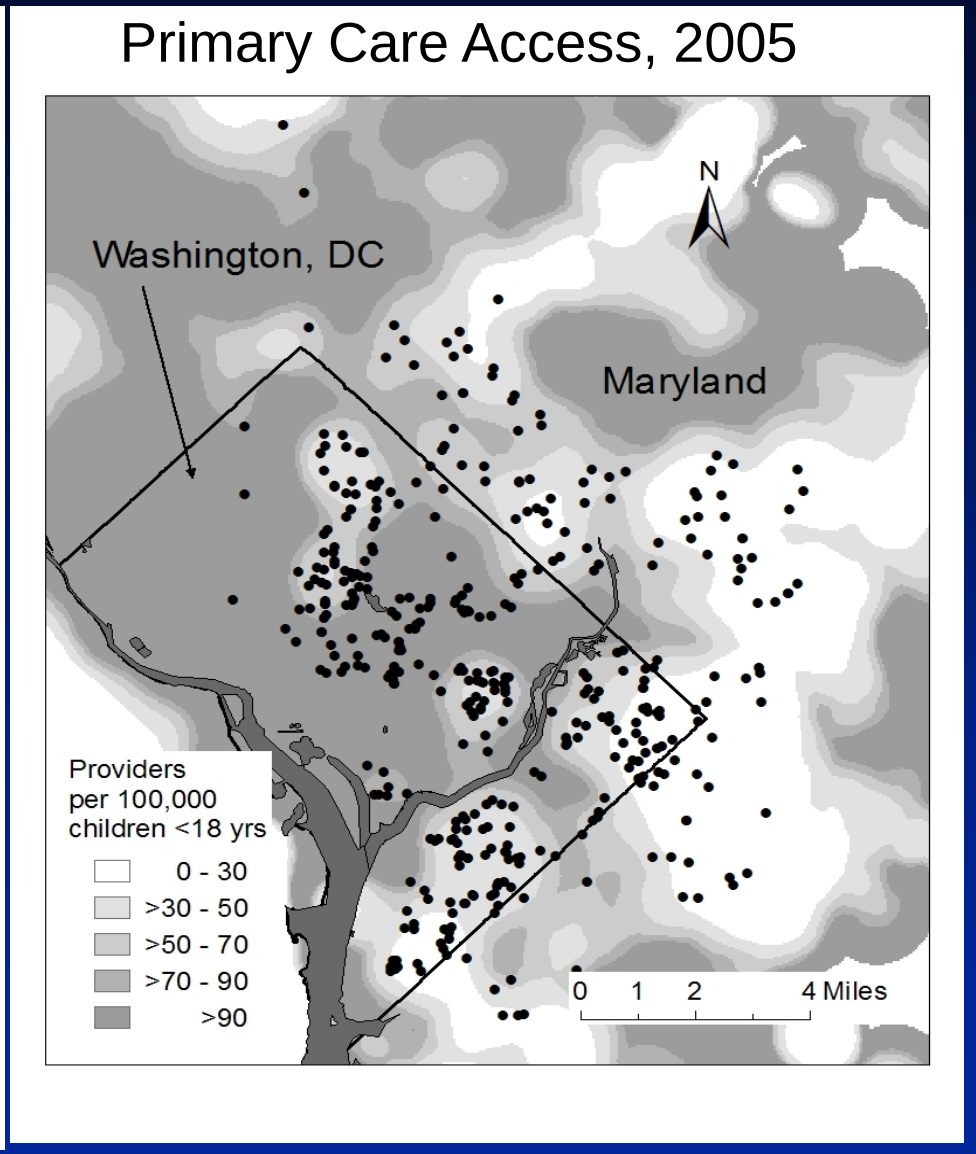
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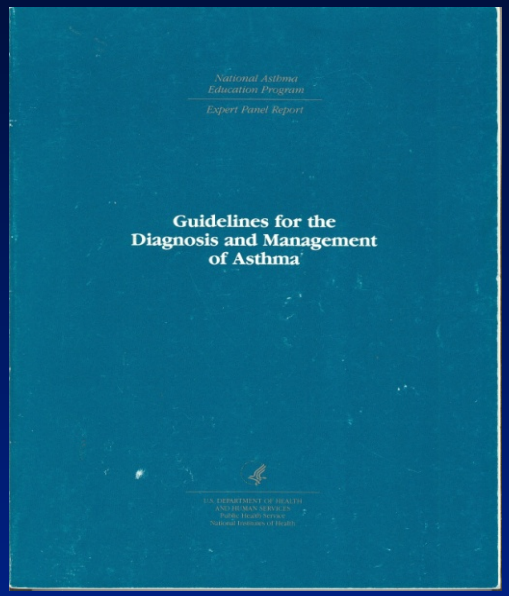
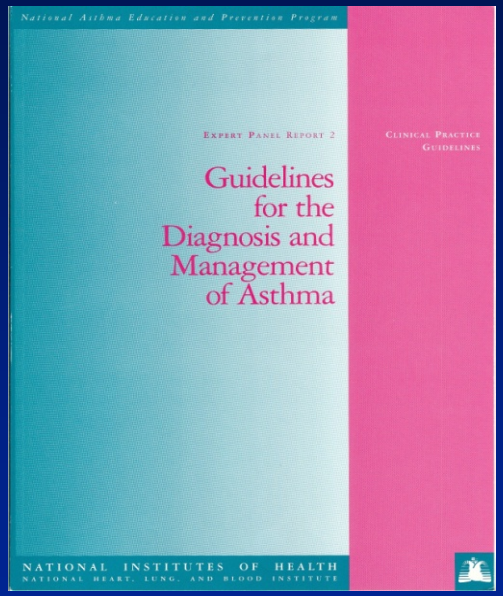
NIH Guidelines

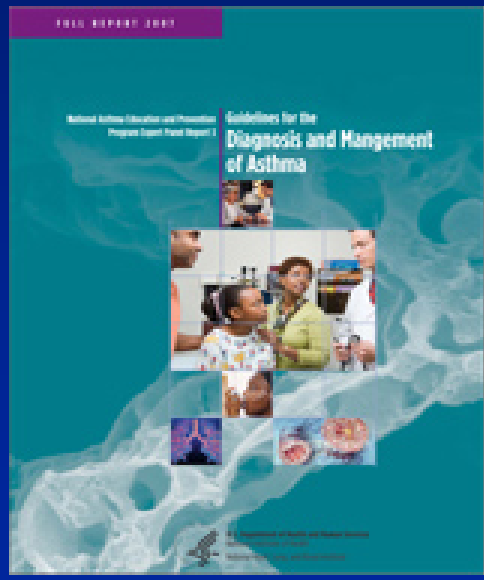


1991



1997

2002



2007

NIH Guidelines 2007 (EPR-3)

- (Almost) no new medications
- Restructuring into “severity” and “control”
- Domains of “impairment” and “risk”
- Six treatment steps (step-up/step-down)
- More careful thought into the ongoing management issues

Summarizes the extensively-validated scientific evidence that the guidelines, when followed, lead to a significant reduction in the frequency and severity of asthma symptoms and improve quality of life

Moving from Evidence to Action

- National Asthma Control Initiative
  - Aims to use recommendations of EPR-3
  - Use Guidelines Implementation Panel (GIP) Report
  - 6 priority messages

GIP Priority Messages

1. Assess asthma severity
2. Use inhaled corticosteroids
3. Assess and monitor asthma control
4. Control environmental exposures
5. Use asthma action plans
6. Schedule follow up visits

Core quality measures for Asthma Learning Collaborative

Quality Measure #1

Assess Asthma Severity

Once a diagnosis of asthma is made, asthma severity should be classified based on impairment and future risk

Severity & Control: Two Domains

- **Impairment (present)**
  - **frequency and intensity of symptoms**
  - **functional limitations = quality of life**

- **Risk (future)**
  - **asthma exacerbations (utilization)**
  - **progressive loss of pulmonary function (lung growth in children)**
  - **risk of adverse reaction from medication**

CLASSIFYING ASTHMA SEVERITY AND INITIATING TREATMENT IN CHILDREN 0-4 YEARS OF AGE

Components of Severity		Classification of Asthma Severity			
		Intermittent	Persistent		
			Mild	Moderate	Severe
Impairment	Symptoms	≤2 days/week	>2 days/week not daily	Daily	Continuous
	Nighttime Awakenings	0	1-2x/month	3-4x/month	>1x/week
	SABA use for sx control	≤2 days/week	>2 days/week not daily	Daily	Several x daily
	Interference with normal activity	none	Minor limitation	Some limitation	Extremely limited
Risk	Exacerbations (consider frequency and severity)	0-1/year	≥2 exacerbations in 6 months requiring oral steroids, or ≥4 wheezing episodes/ year lasting >1 day AND risk factors for persistent asthma		
		Frequency and severity of may fluctuate over time Exacerbations of any severity may occur in patients in any category			
Recommended Step for Initiating Treatment		Step 1	Step 2	Step 3	Consider short course of oral steroids
		In 2 -6 weeks, evaluate asthma control that is achieved and adjust therapy accordingly			

CLASSIFYING ASTHMA SEVERITY AND INITIATING TREATMENT IN CHILDREN 5 - 11 YEARS OF AGE

Components of Severity		Classification of Asthma Severity			
		Intermittent	Persistent		
			Mild	Moderate	Severe
Impairment	Symptoms	≤2 days/week	>2 days/week not daily	Daily	Continuous
	Nighttime Awakenings	≤2x/month	3-4x/month	>1x/week not nightly	Often nightly
	SABA use for sx control	≤2 days/week	>2 days/week not daily	Daily	Several times daily
	Interference with normal activity	none	Minor limitation	Some limitation	Extremely limited
	Lung Function	•Normal FEV_1 between exacerbations • FEV_1 > 80% • FEV_1/FVC> 85%	• FEV_1 >80% •FEV_1/FVC> 80%	• FEV_1=60% - 80% •FEV_1/FVC=75%-80%	•FEV_1 <60% •FEV_1/FVC <75%
Risk	Exacerbations (consider frequency and severity)	0-2/year	> 2 /year →		
		Frequency and severity may vary over time for patients in any category			
		Relative annual risk of exacerbations may be related to FEV			
Recommended Step for Initiating Treatment		Step 1	Step 2	Step3 medium-dose ICS option	Step 3 or 4
				Consider short course of oral steroids	
		In 2 -6 weeks, evaluate asthma control that is achieved and adjust therapy			

CLASSIFYING ASTHMA SEVERITY AND INITIATING TREATMENT IN YOUTHS ≥ 12 YEARS AND ADULTS

Components of Severity		Classification of Asthma Severity			
		Intermittent	Persistent		
			Mild	Moderate	Severe
Impairment Normal FEV_1/FVC 8-19 yr 85% 20-39 yr 80% 40-59 yr 75% 60-80 yr 70%	Symptoms	≤2 days/week	>2 days/week not daily	Daily	Continuous
	Nighttime Awakenings	≤2x/month	3-4x/month	>1x/week not nightly	Often nightly
	SABA use for sx control	≤2 days/week	>2 days/week not daily	Daily	Several times daily
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Risk	Exacerbations (consider frequency and severity)	0-2/year	> 2 /year →		
		Frequency and severity may vary over time for patients in any category			
		Relative annual risk of exacerbations may be related to FEV			
Recommended Step for Initiating Treatment		Step 1	Step 2	Step 3	Step 4 or 5
		In 2 -6 weeks, evaluate asthma control that is achieved and adjust therapy accordingly			Consider short course of oral steroids

Classifying Severity for Patients Currently Taking Controller Medications

Lowest level of treatment required to maintain control	**Classification of Asthma Severity**			
	Intermittent	Persistent		
	Step 1	Mild	Moderate	Severe
		Step 2	Step 3 or 4	Step 5 or 6

Why does classification matter?

- Guides treatment decisions
- Most important distinction is intermittent vs. persistent disease
- Severity in children often changes over time:

RE-ASSESS FREQUENTLY!

Case # 1

A 6-year old male currently not on any asthma medications has visited your practice 2 times in the past year for acute wheezing, each episode requiring an oral steroid burst. In between episodes, his mother reports nighttime cough that awakens him about 4 nights per month and minor activity limitation. This patient's asthma severity can be BEST classified as:

A. Intermittent (Step 1)

B. Mild Persistent (Step 2)

C. Moderate Persistent (Step 3)

D. Severe Persistent (Step 3)

E. I would not diagnose this child with asthma

CLASSIFYING ASTHMA SEVERITY AND INITIATING TREATMENT IN CHILDREN 5 - 11 YEARS OF AGE

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		Intermittent	Persistent		
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Risk	Exacerbations (consider frequency and severity)	0-2/year	> 2 /year →		
		Frequency and severity may vary over time for patients in any category			
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Recommended Step for Initiating Treatment		Step 1	Step 2	Step3 medium-dose ICS option	Step 3 or 4
				Consider short course of oral steroids	
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C. Moderate Persistent (Step 3)

D. Severe Persistent (Step 3)

E. I would not diagnose this child with asthma

Treatment Strategies

- Gain Control!!!
  - Aggressive, intensive initial therapy to suppress airway inflammation and gain prompt control
- Maintain Control
  - *Frequent follow-up*
  - Therapeutic modifications depending on severity and clinical course
  - “Step down” long-term control medications to maintain control with minimal side effects

Quality Measure #2
Use Inhaled Corticosteroids

- Long term control medication should be taken to achieve and maintain control of persistent asthma
- ICS are the most potent and consistently effective long term control medication

ICS Choice Considerations

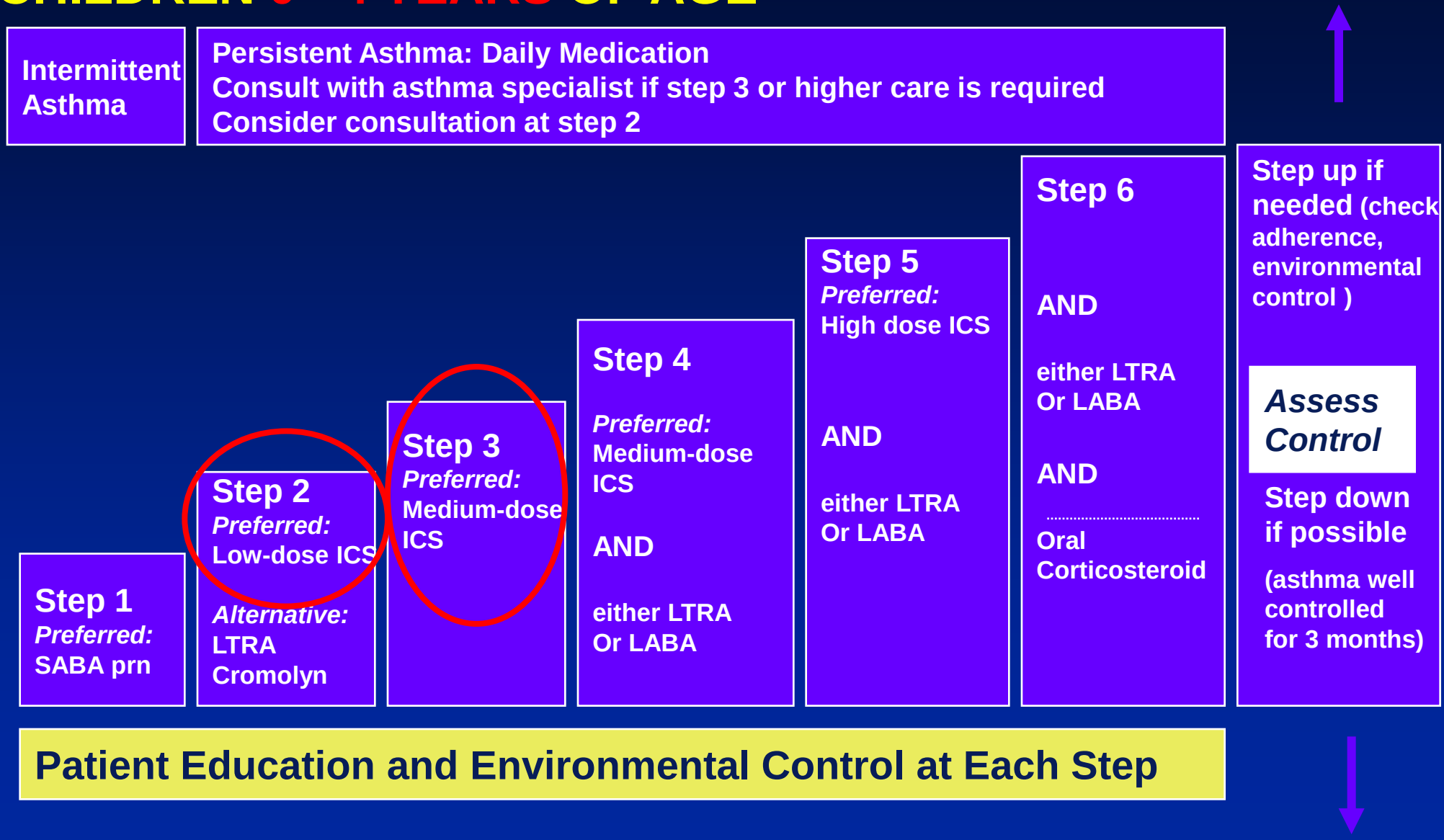
- Age of child
- Available formulations – medication, delivery device
- Insurance coverage
- Daily vs. episodic use
- Evidence of benefit
- Risk of side effects short/long-term

Other Controller Options

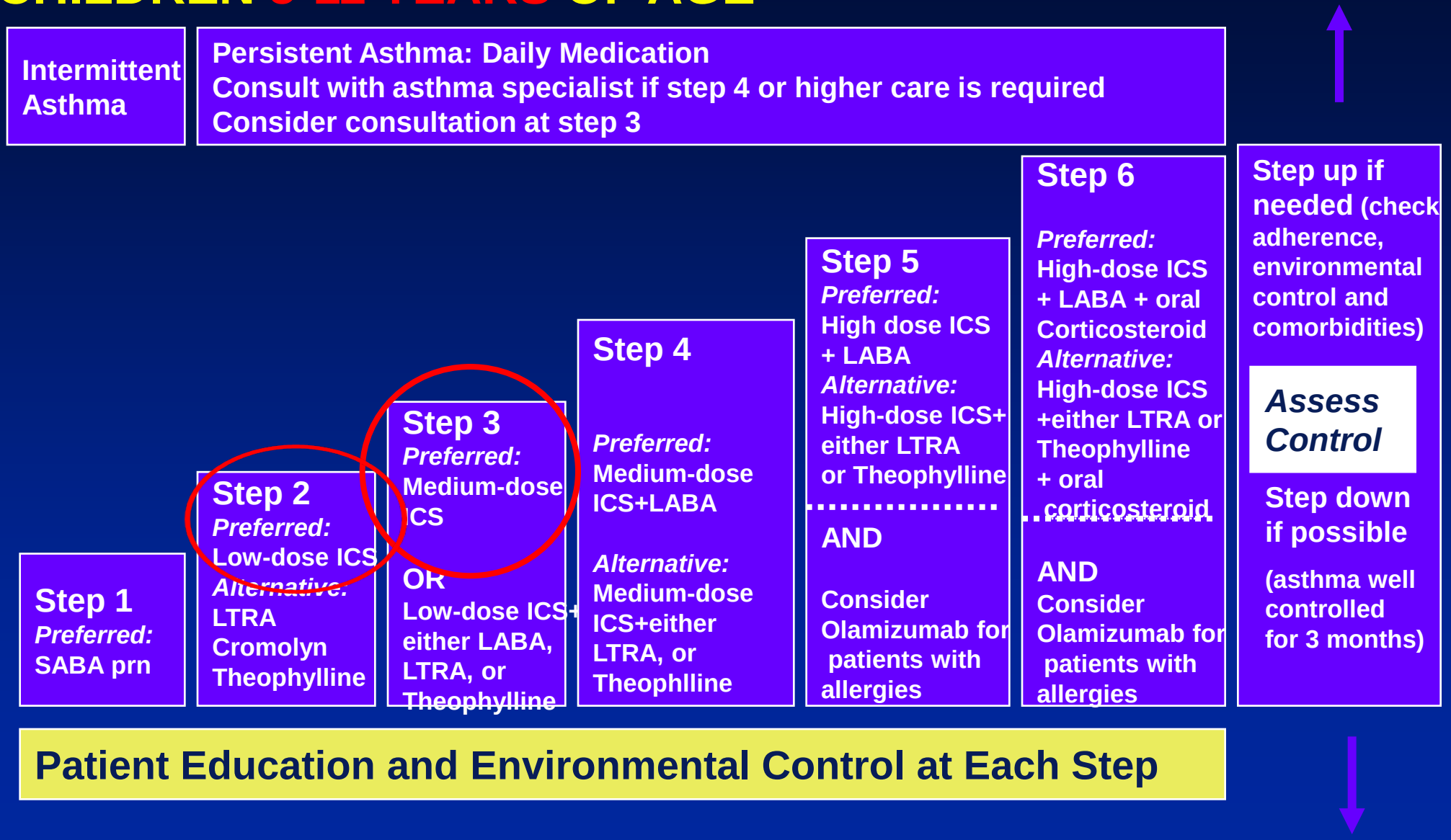
- ICS-LABA combination agents (Advair)
- Leukotriene modifiers (Singulair)
- Anticholinergics (Atrovent)
- Immunomodulators (Xolair)

- Allergy immunotherapy

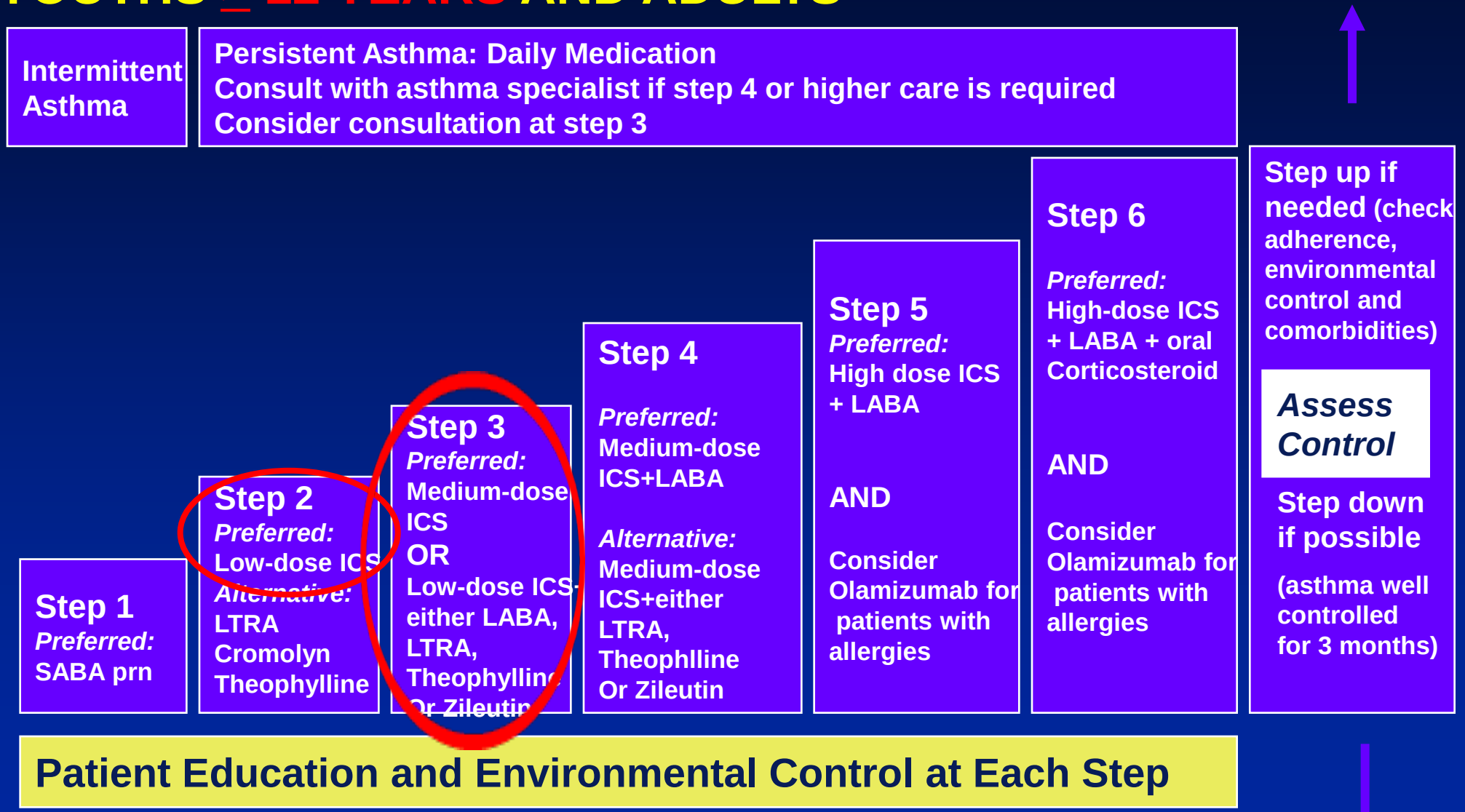
STEPWISE APPROACH FOR MANAGING ASTHMA IN CHILDREN 0 - 4 YEARS OF AGE



STEPWISE APPROACH FOR MANAGING ASTHMA IN CHILDREN 5-11 YEARS OF AGE



STEPWISE APPROACH FOR MANAGING ASTHMA IN YOUTHS ≥ 12 YEARS AND ADULTS



Case # 2

A 7-year old male presents to your clinic in November complaining of daily nocturnal cough for 2 months. He denies symptoms of GE Reflux. He has visited the emergency room twice in the past year where he received albuterol with good symptomatic relief. The BEST choice of treatment would be to:

A. Start fluticasone 44 mcg 2 puffs twice daily for 4-6 weeks and then reassess

B. Start fluticasone 110 mcg 2 puffs twice daily for 4-6 weeks and then reassess

C. Start a leukotriene modifier as you suspect his symptoms are likely due to post-nasal drainage from allergic rhinitis

D. I cannot feel confident at this time that this patient should be treated with asthma medications

CLASSIFYING ASTHMA SEVERITY AND INITIATING TREATMENT IN CHILDREN 5 - 11 YEARS OF AGE

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Risk	Exacerbations (consider frequency and severity)	0-2/year	> 2 /year		
		Frequency and severity may vary over time for patients in any category			
		Relative annual risk of excaerbations may be related to FEV			
Recommended Step for Initiating Treatment		Step 1	Step 2	Step3 medium dose ICS option Consider short course of oral steroids	Step 3 or 4
		In 2 -6 weeks, evaluate asthma control that is achieved and adjust therapy			

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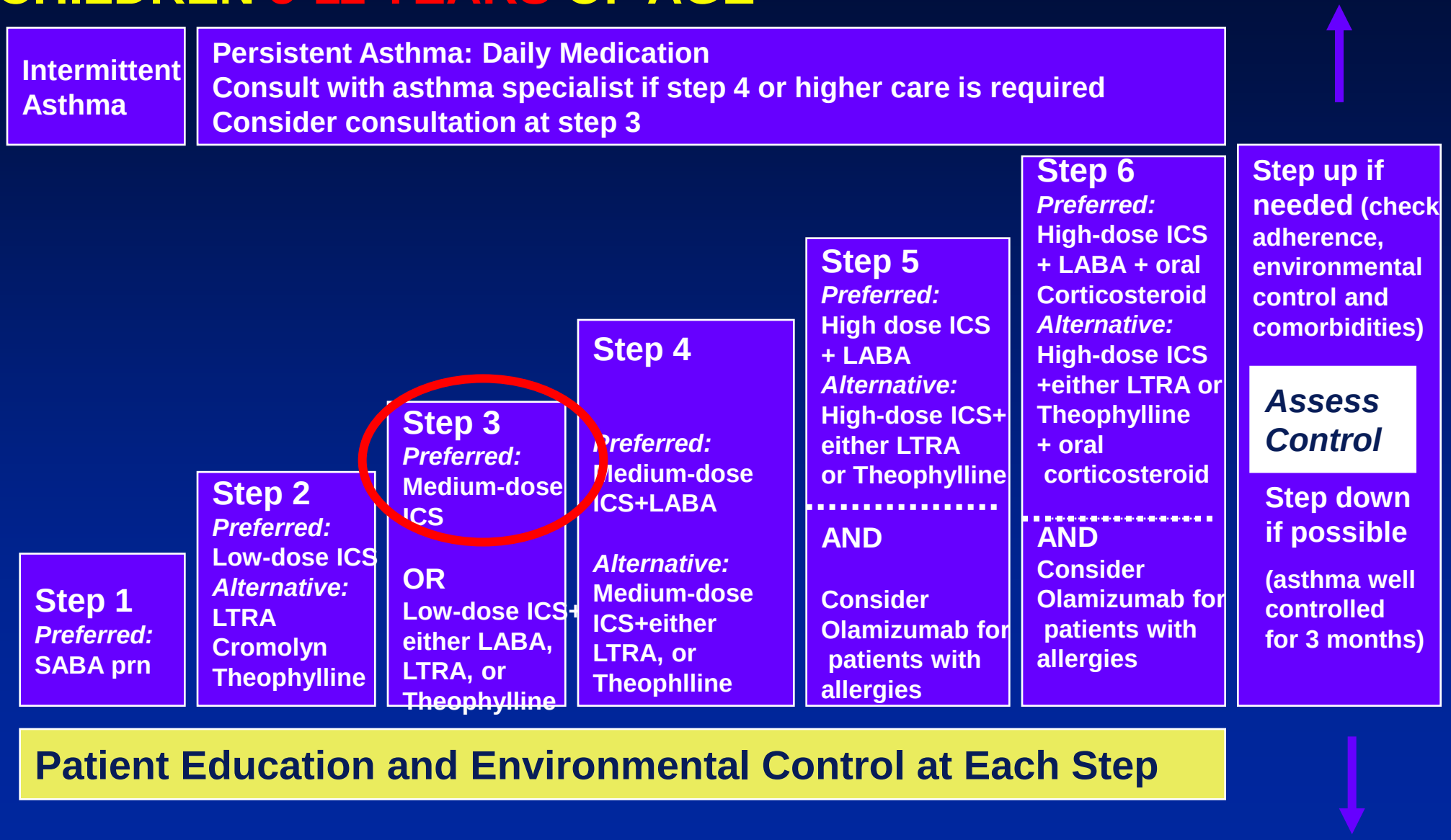

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Quality Measure #3
Assess and Monitor Asthma Control

- At planned follow-up, well, and sick visits
- Consider both impairment and risk

Every patient who has asthma should be taught to recognize symptom patterns that indicate inadequate control

Monitoring Asthma Control

Ask the parent and patient…

- Has your child's asthma awakened him/her at night?
- Has your child needed more quick-relief inhaler than usual?
- Has your child needed urgent care for asthma?
- Is your child participating in his/her usual or desired activities?
- What are your child's triggers?

Childhood Asthma Control Test for children 4 to 11 years old. Know the score.

This test will provide a score that may help your 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. No matter what the score, bring this test to your doctor to talk about your child's results.

Have your child complete these questions.

1. How is your asthma today?

SCORE				
	0 Very bad	1 Bad	2 Good	3 Very good

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.

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.

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.

Please complete the following questions on your own.

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

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

6. During the last 4 weeks, on average, how many days per month did your child wheeze during the day because of asthma?

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

7. During the last 4 weeks, on average, how many days per month did your child wake up during the night because of asthma?

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

TOTAL

Please turn this page over to see what your child's total score means.

Asthma Control Test™ for teens 12 years and older. Know the score.

If your teen is 12 years or older have him take the test now and discuss the results with your doctor

Step 1 Write the number of each answer in the score box provided.

Step 2 Add up each score box for the total.

Step 3 Take the test to the doctor to talk about your child's total 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 time	1	Most of the time	2	Some of the time	3	A little of the time	4	None of the time	5

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

More than once a day	1	Once a day	2	3 to 6 times a week	3	Once or twice a week	4	Not at all	5

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 week	1	2 or 3 nights a week	2	Once a week	3	Once or twice	4	Not at all	5

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 day	1	1 or 2 times per day	2	2 or 3 times per week	3	Once a week or less	4	Not at all	5

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

Not controlled at all	1	Poorly controlled	2	Somewhat controlled	3	Well controlled	4	Completely controlled	5

AMERICAN LUNG ASSOCIATION. The American Lung Association supports the Asthma Control Test and wants everyone 12 years of age and older with asthma to take it.

Total

Monitoring Asthma Control

- Assess whether medications are being taken as prescribed
- Assess whether inhalation technique is correct
- Consider performing spirometry or peak flow and compare to previous measurements
- Adjust medications as needed to achieve best control with the lowest dose needed
- Consider environmental mitigation strategy

ASSESSING ASTHMA CONTROL AND ADJUSTING THERAPY IN CHILDREN 0 - 4 YEARS OF AGE

Components of Control		Classification of Asthma Control		
		Well Controlled	Not Well Controlled	Very Poorly Controlled
IMPAIRMENT	Symptoms	≤ 2 days/week	> 2 days/week	Throughout the day
	Nighttime awakenings	≤ 1/month	≥ 2 x/month	≥2x/week
	Interference with normal activity	none	Some limitation	Extremely limited
	SABA use	≤ 2 days/week	> 2 days/week	Several times/day
RISK	Exacerbations	0- 1 per year	2 - 3 per year	> 3 per year
	Progressive loss of lung function	Evaluation requires long-term follow up care		
	Rx-related adverse effects	Consider in overall assessment of risk		
Recommended Action For Treatment		•Maintain current step •REGULAR FOLLOW UP EVERY 3 - 6 MONTHS •Consider step down if well controlled at least 3 months	•Step up 1 step •Reevaluate in 2 - 6 weeks •If no clear benefit in 4-6 weeks , consider alternative dx or adjust therapy	•Consider oral steroids •Step up (1-2 steps) and reevaluate in 2 weeks •If no clear benefit in 4-6 weeks , consider alternative dx or adjust therapy

ASSESSING ASTHMA CONTROL AND ADJUSTING THERAPY IN CHILDREN 5 - 11 YEARS OF AGE

Components of Control		Classification of Asthma Control		
		Well Controlled	Not Well Controlled	Very Poorly Controlled
IMPAIRMENT	Symptoms	≤ 2 days/week	> 2 days/week	Throughout the day
	Nighttime awakenings	≤ 1/month	≥ 2 x/month	≥2x/week
	Interference with normal activity	none	Some limitation	Extremely limited
	SABA use	≤ 2 days/week	> 2 days/week	Several times/day
	FEV_1 or peak flow	> 80% predicted/ personal best	60-80% predicted/ personal best	<60% predicted/ personal best
	FEV_1/FVC	> 80% predicted	75-80% predicted	<75% predicted
RISK	Exacerbations	0- 1 per year	2 - 3 per year	> 3 per year
	Progressive loss of lung function	Evaluation requires long-term follow up care		
	Rx-related adverse effects	Consider in overall assessment of risk		
Recommended Action For Treatment		•Maintain current step •Consider step down if well controlled at least 3 months	•Step up 1 step •Reevaluate in 2 - 6 weeks	•Consider oral steroids •Step up 1-2 weeks and reevaluate in 2 weeks

ASSESSING ASTHMA CONTROL AND ADJUSTING THERAPY IN YOUTHS ≥ 12 YEARS OF AGE AND ADULTS

Components of Control		Classification of Asthma Control		
		Well Controlled	Not Well Controlled	Very Poorly Controlled
IMPAIRMENT	Symptoms	≤ 2 days/week	> 2 days/week	Throughout the day
	Nighttime awakenings	≤ 2/month	1-3/week	≥ 4/week
	Interference with normal activity	none	Some limitation	Extremely limited
	SABA use	≤ 2 days/week	> 2 days/week	Several times/day
	FEV_1 or peak flow	> 80% predicted/ personal best	60-80% predicted/ personal best	<60% predicted/ personal best
	Validated questionnaires ATAQ/ACT	0/≥ 20	1-2/16-19	3-4/≤ 15
RISK	Exacerbations	0- 1 per year	2 - 3 per year	> 3 per year
	Progressive loss of lung function	Evaluation requires long-term follow up care		
	Rx-related adverse effects	Consider in overall assessment of risk		
Recommended Action For Treatment		•Maintain current step •Consider step down if well controlled at least 3 months	•Step up 1 step •Reevaluate in 2 - 6 weeks	•Consider oral steroids •Step up 1-2 weeks and reevaluate in 2 weeks

ASSESSING ASTHMA CONTROL AND ADJUSTING THERAPY IN CHILDREN 5 - 11 YEARS OF AGE

Components of Control		Classification of Asthma Control		
		Well Controlled	Not Well Controlled	Very Poorly Controlled
IMPAIRMENT	Symptoms	≤ 2 days/week	> 2 days/week	Throughout the day
	Nighttime awakenings	≤ 1/month	≥ 2 x/month	≥2x/week
	Interference with normal activity	none	Some limitation	Extremely limited
	SABA use	≤ 2 days/week	> 2 days/week	Several times/day
	FEV_1 or peak flow	> 80% predicted/ personal best	60-80% predicted/ personal best	<60% predicted/ personal best
	FEV_1/FVC	> 80% predicted	75-80% predicted	<75% predicted
RISK	Exacerbations	0- 1 per year	2 - 3 per year	> 3 per year
	Progressive loss of lung function	Evaluation requires long-term follow up care		
	Rx-related adverse effects	Consider in overall assessment of risk		
Recommended Action For Treatment		•Maintain current step •Consider step down if well controlled at least 3 months	•Step up 1 step •Reevaluate in 2 - 6 weeks	•Consider oral steroids •Step up 1-2 steps and reevaluate in 2 weeks

Case # 3

A 7-year old female with asthma reports nighttime awakenings about 2 times per week and requires albuterol about 3 times per week. She is currently taking fluticasone 44 mcg 2 puffs twice daily. The BEST next step in your step-up treatment plan would be to:

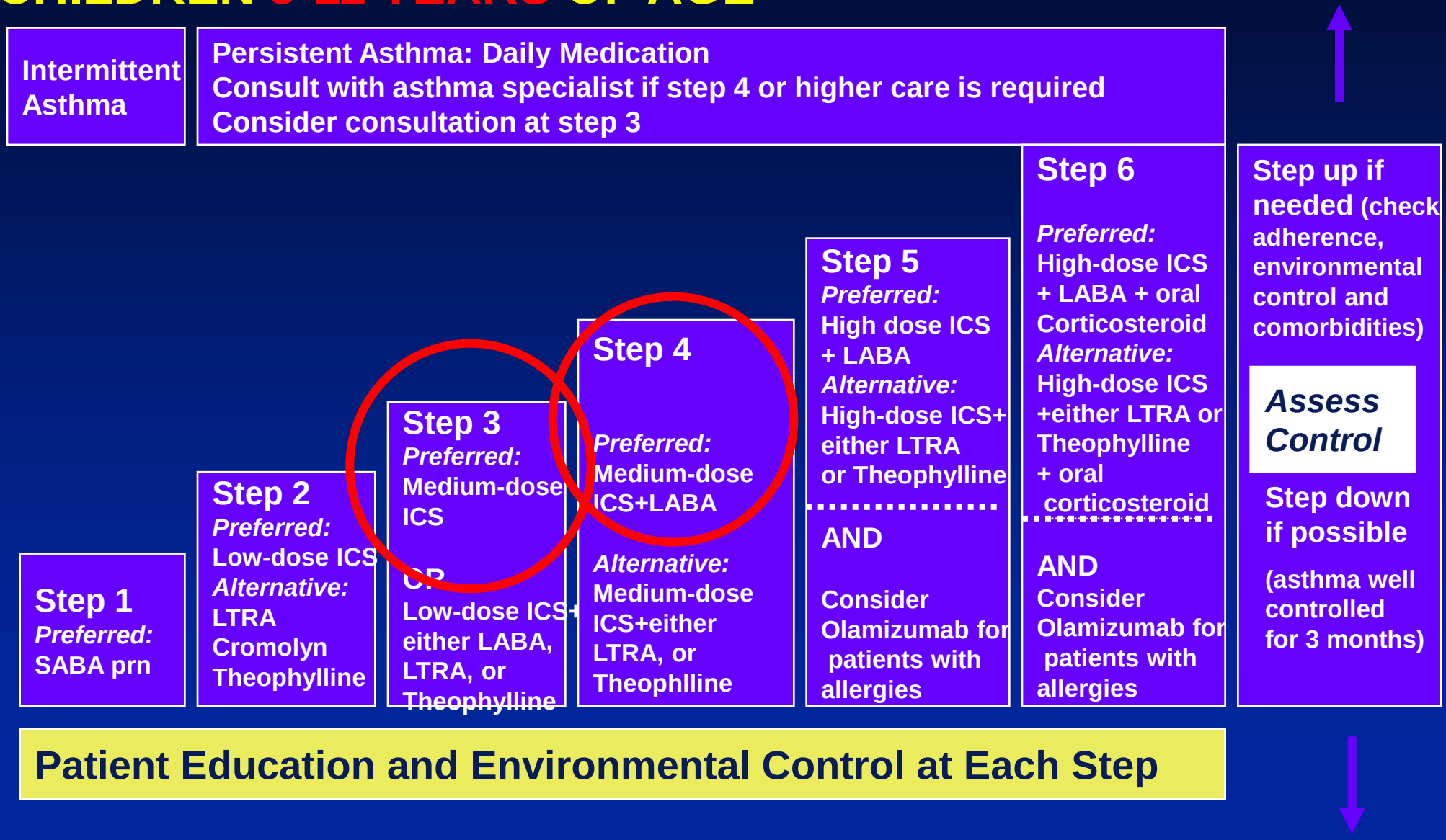
A. Increase the dose of the inhaled steroid
B. Add a leukotriene modifier
C. Add a long-acting B-agonist
D. Encourage albuterol more frequently, every 4 hours

Recommended Action for Treatment Based on Assessment of Control

Well Controlled	Not Well Controlled	Very Poorly Controlled
Maintain current step	Step up 1 step and reevaluate in 2-6 weeks	Consider short course of oral corticosteroids
Consider step down if well controlled for at least 3 months	For side effects, consider alternative treatment options	Step up 1-2 steps and reevaluate in 2 weeks
		For side effects, consider alternative treatment options

Before stepping up check adherence and environmental control

STEPWISE APPROACH FOR MANAGING ASTHMA IN CHILDREN 5-11 YEARS OF AGE



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A. Increase the dose of the inhaled steroid
B. Add a leukotriene modifier
C. Add a long-acting B-agonist
D. Encourage albuterol more frequently, every 4 hours

Quality Measure #4
Control Environmental Exposures

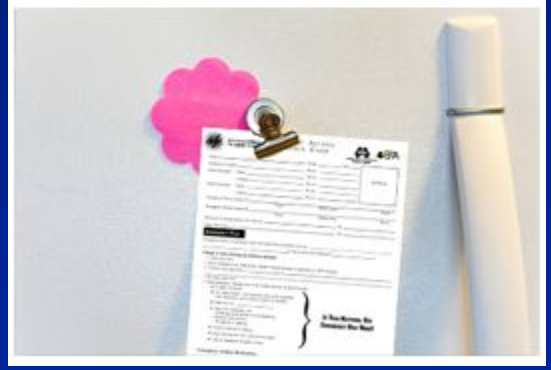
Patients who have asthma at any level of severity should be queried about allergen and irritant exposure and counseled appropriately

"Emily, you can eat organic broccoli. I know for a fact that it is not an asthma trigger."

Quality Measure #5
Use Asthma Action Plans

All patients should be provided a written asthma action plan with:

1. Daily treatment plan
2. Info on how to recognize and manage symptoms
3. Triggers identified
4. Copies for all caregivers



Asthma Action Plan

Name	School	DOB / /
Health Care Provider	Provider's Phone	
Parent/Responsible Person	Parent's Phone	
Additional Emergency Contact	Contact Phone	

DO NOT WRITE IN THIS SPACE

Place Patient Label Here

Asthma Severity *(see reverse side)*
☐ Intermittent *or*
Persistent: ☐ Mild ☐ Moderate ☐ Severe

Asthma Control
☐ Well-controlled ☐ Needs better control

Asthma Triggers Identified (Things that make your asthma worse):
☐ Colds ☐ Smoke (tobacco, incense) ☐ Pollen ☐ Dust ☐ Animals_____
☐ Strong odors ☐ Mold/moisture ☐ Pests (rodents, cockroaches)
☐ Stress/emotions ☐ Gastroesophageal reflux ☐ Exercise
☐ Season: Fall, Winter, Spring, Summer ☐ Other:_____

Date of Last Flu Shot: ___/___/___

Green Zone: Go!–Take these CONTROL (PREVENTION) Medicines EVERY Day

You have ALL of these:
- Breathing is easy
- No cough or wheeze
- Can work and play
- Can sleep all night

Peak flow in this area:
_____ to _____
(More than 80% of Personal Best)

Personal best peak flow:_____

☐ No control medicines required. **Always rinse mouth after using your daily inhaled medicine.**

☐ _____ (Inhaled corticosteroid or inhaled corticosteroid/long-acting β–agonist), _____ puff(s) inhaler **with spacer** _____ times a day

☐ _____ (Inhaled corticosteroid), _____ nebulizer treatment(s) _____ times a day

☐ _____ (Leukotriene antagonist), take _____ by mouth once daily at bedtime

For asthma with exercise, ADD:
☐ _____ (Fast-acting inhaled β–agonist), _____ puff(s) inhaler with spacer 15 minutes before exercise

For nasal/environmental allergy, ADD:
☐ _____

Yellow Zone: Caution!–Continue CONTROL Medicines and ADD QUICK-RELIEF Medicines

You have ANY of these:
- First sign of a cold
- Cough or mild wheeze
- Tight chest
- Problems sleeping, working, or playing

Peak flow in this area:
_____ to _____
(50%-80% of Personal Best)

☐ _____ (Fast-acting inhaled β–agonist), _____ puff(s) inhaler **with spacer** every _____ hours as needed

OR

☐ _____ (Fast-acting inhaled β–agonist), _____ nebulizer treatment(s) every _____ hours as needed

☐ Other_____

Call your DOCTOR if you have these signs more than two times a week, *or* if your quick-relief medicine doesn't work!

Red Zone: EMERGENCY!–Continue CONTROL & QUICK-RELIEF Medicines and GET HELP!

You have ANY of these:
- Can't talk, eat, or walk well
- Medicine is not helping
- Breathing hard and fast
- Blue lips and fingernails
- Tired or lethargic
- Ribs show

Peak flow in this area:
Less than _____
(Less than 50% of Personal Best)

☐ _____ (Fast-acting inhaled β–agonist), ____ puff(s) inhaler with spacer **every 15 minutes,** for **3** treatments

OR

☐ _____ (Fast-acting inhaled β–agonist), ____ nebulizer treatment **every 15 minutes,** for **3** treatments

Call your doctor while giving the treatments.

☐ Other_____

IF YOU CANNOT CONTACT YOUR DOCTOR: Call 911 for an ambulance or go directly to the Emergency Department!

REQUIRED Healthcare Provider Signature:

_____ Date: _____

REQUIRED Responsible Person Signature:

_____ Date: _____

Follow up with primary doctor in 1 week or:

_____ Phone:_____

☐ Patient/parent has doctor/clinic number at home

SCHOOL MEDICATION CONSENT AND PROVIDER ORDER FOR CHILDREN/YOUTH:
Possible side effects of quick-relief medicines (e.g., albuterol) include tachycardia, tremor, and nervousness.
Healthcare Provider Initials:
____This student is capable and approved to self-administer the medicine(s) named above.
____This student is not approved to self-medicate.
This authorization is valid for one calendar year.
As the RESPONSIBLE PERSON:
☐ I hereby authorize a trained school employee, if available, to administer medication to the student.
☐ I hereby authorize the student to possess and self-administer medication.
☐ I hereby acknowledge that the District and its schools, employees and agents shall be immune from civil liability for acts or omissions under D.C. Law 17-107 except for criminal acts, intentional wrongdoing, gross negligence, or willful misconduct.

★★★ Government of the District of Columbia
Vincent C. Gray, Mayor

www.dcasthmapartnership.org

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Coordinated by the National Capital Asthma Coalition
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Maryland State School Asthma Medication Administration Authorization Form

ASTHMA ACTION PLAN ___/___/___ (Date) to ___/___/___ (Date) (not to exceed 12 months)

TRIGGER (LIST)
_____
_____
_____
_____

Child's Name: _____ DOB: _____ PEAK FLOW PERSONAL BEST: _____
Parent/Guardian's Name: _____ Home: _____ Work: _____ Cell: _____

ASTHMA SEVERITY: ☐ Exercise Induced ☐ Intermittent ☐ Mild Persistent ☐ Moderate Persistent ☐ Severe Persistent

CHECK SYMPTOMS / INDICATIONS FOR MEDICATION USE

GREEN ZONE — **CONTROLLER MEDICATION - USE DAILY AT HOME UNLESS OTHERWISE INDICATED**

☐ Breathing is good
☐ No cough or wheeze
☐ Can work, exercise, play
☐ Other: _____
☐ Peak flow greater than _____ (80% personal best)

Medication	Dose	Route	Frequency/Time
			☐ School
			☐ School
			☐ School

EXERCISE ZONE

☐ Prior to exercise/sports/physical education (PE)

Medication (Rescue Medication)	Dose	Route	Frequency/Time

If using more than twice per week for exercise/sports/PE, notify the health care provider and parent/guardian.

YELLOW ZONE — **RESCUE MEDICATIONS - TO BE ADDED TO GREEN ZONE MEDICATIONS FOR SYMPTOMS**

☐ Cough or cold symptoms
☐ Wheezing
☐ Tight chest or shortness of breath
☐ Cough at night
☐ Other: _____
☐ Peak flow between _____ and _____ (50%-79% personal best)

Medication	Dose	Route	Frequency/Time

If symptoms do not improve in _____ minutes, notify the health care provider and parent/guardian.
If using more than twice per week, notify the health care provider and parent/guardian.

RED ZONE — **EMERGENCY MEDICATIONS - TAKE THESE MEDICATIONS AND CALL 911**

☐ Medication is not helping within 15-20 mins
☐ Breathing is hard and fast
☐ Nasal flaring or intercostal retraction
☐ Lips or fingernails blue
☐ Trouble walking or talking
☐ Other: _____
☐ Peak flow less than _____ (50% personal best)

Medication	Dose	Route	Frequency/Time

CONTACT THE PARENT/GUARDIAN AFTER CALLING 911.

HEALTH CARE PROVIDER AUTHORIZATION
I authorize the administration of the medications as ordered above.
Student may self-carry medications ☐ Yes ☐ No
Health Care Provider Name: _____
Signature: _____
Date: _____

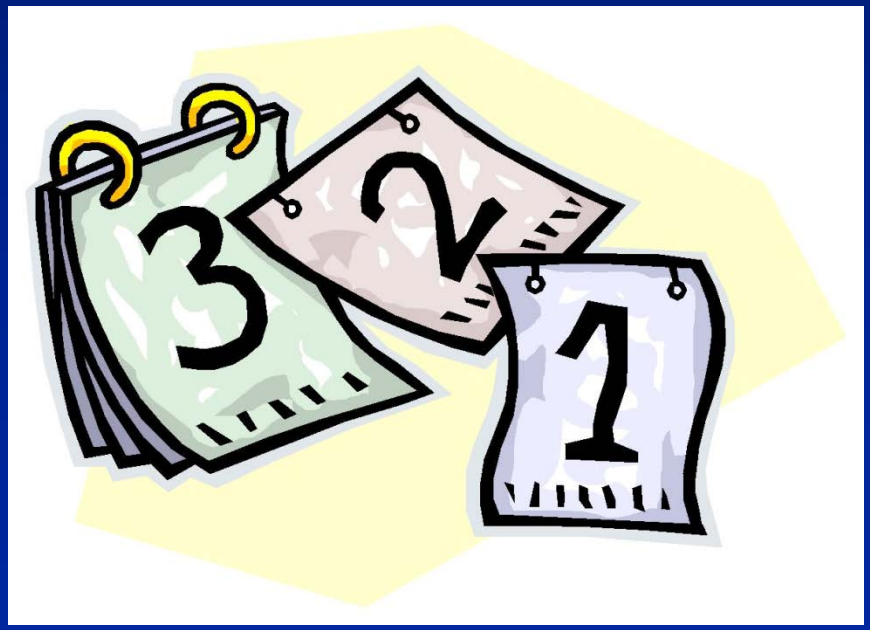
PARENT/GUARDIAN AUTHORIZATION
I authorize the administration of the medications as ordered above.
I acknowledge that my child ☐ is ☐ is not authorized to self-carry his/her medication(s):
Signature: _____
Date: _____

REVIEWED BY SCHOOL NURSE
Name: _____
Signature: _____
Date: _____
Authorized to self-carry medications: ☐ Yes ☐ No

10/2012

Quality Measure #6
Schedule Follow-up Visits

Monitoring and follow up is essential. EPR-3 recommends a stepwise approach to management – best accomplished at *planned visits*.



Follow-up visits

Our recommendation:

- Schedule 2-6 weeks after initiating or changing daily treatment plan
- Every 3 months once control is established
- Allows for control assessment, refills, education review, anticipatory guidance

Supplemental Measure #1
Influenza Vaccine 2012-13

CDC recommends:

- Flu vaccine for all persons ≥6 months
- Encourage for people with asthma due to higher risk of flu complications, and chance of flu virus-induced asthma exacerbations
- People with asthma should receive the inactivated vaccine by injection

Supplemental Measure #2
Device Technique

An opportunity for improvement…

Observational study of 296 children ages 8-16y from five primary care practices (41 providers) in non-urban areas of NC

- Only 8 % of children performed all of the correct steps for use of MDI/spacer
- *95 % of providers did not assess technique*
- *96 % of providers did not demonstrate technique*

Sleath B et al. *Pediatrics*, April 2011.

Questions & Discussion