



CHIME
Health Center
**most
wired**
2018

HIMSS Analytics **7**
EMRAM

Asthma: A Case Study



Akron Children's Hospital

Presenters

- Jackie Pressman MSN, APRN-CNP
- Mary George MSN, APRN-CNP



We have no relevant no financial or nonfinancial relationships to disclose



Objectives

- Describe appropriate clinical treatment through case study presentation
- Provide relevant clinical updates and new guidelines for asthma
- Discuss available outpatient community resources for asthma patients



Outpatient Asthma Management

CASE STUDY



Akron Children's Hospital

Joshua L. is a 6 yo male who you saw as a new patient in April. His mother reported that he was born full term with no complications. He was on an extensively hydrolyzed formula as an infant due to colic and bloody stools. Immunizations are UTD and he has been quite healthy. Family history includes an older brother who has a peanut allergy, mom says she has horrible eczema, and his father was on allergen immunotherapy.



Mom's primary concern is his asthma. Prescribed Albuterol first at age 3 for wheezing with viral illness. Never on a controller inhaler. In the past 6 months he's been on oral steroids twice, first by his previous PCP and then when seen in UC. These exacerbations were associated with URI symptoms which has historically been his only asthma trigger, but he's never needed oral steroids before this year.



Mom has also noted that he coughs during soccer and his endurance seems to have decreased. She has not used his Albuterol during soccer to assess whether it helps. When asked about nocturnal coughing mom reports that his cough wakes him at most once per month, except when ill he was not getting any sleep at night. They have not used Albuterol at all since he got over his exacerbation when he was seen in UC which was over a month ago.



Initial Asthma Diagnosis

- Presence of symptoms
- Symptom patterns
- Precipitating factors or conditions (ie atopy)
- Known asthma risk factors

Sample questions* for the diagnosis and initial assessment of asthma

A "yes" answer to any question suggests that an asthma diagnosis is likely.
In the past 12 months, have you[†]...
Had a sudden severe episode or recurrent episodes of coughing, wheezing (high-pitched whistling sounds when breathing out), chest tightness, or shortness of breath?
Had colds that "go to the chest" or take more than 10 days to get over?
Had coughing, wheezing, or shortness of breath during a particular season or time of the year?
Had coughing, wheezing, or shortness of breath in certain places or when exposed to certain things (eg, animals, tobacco smoke, perfumes)?
Used any medications that help you breathe better? How often?
Had symptoms relieved when the medications are used?
In the past four weeks, have you[†] had coughing, wheezing, or shortness of breath...
At night that has awakened you?
Upon awakening?
After running, moderate exercise, or other physical activity?

* These questions are examples and do not represent a standardized assessment or diagnostic instrument. The validity and reliability of these questions have not been assessed.

[†] Or "your child," if a parent/caregiver is answering the questions for a child.

Reproduced from: National Heart, Blood, and Lung Institute Expert Panel Report 3 (EPR 3): Guidelines for the Diagnosis and Management of Asthma. NIH Publication no. 08-4051, 2007.

UpToDate[®]



Akron Children's Hospital

Initial Diagnosis: Symptoms

- Cough
 - Nocturnal, seasonal, response to exposures (cold air, laughing, allergens)
 - Frequently the sole presenting complaint
 - Typically dry, hacky but can be productive
- Wheeze



Initial Diagnosis: Symptoms

- Patterns
 - Seasonal/Pollen season = atopic asthma
 - Asymptomatic baseline with intermittent exacerbations
 - Chronic symptoms with intermittent worsening symptoms
- Precipitating Factors
 - Viral URIs, exercise, weather, allergen exposure, smoke or other bronchial irritants



Initial Asthma Diagnosis: Symptoms

- Asthma risk factors
 - Eczema, food allergies (atopy)
 - Family history



Asthma Classification

INTERMITTENT

- Daytime symptoms ≤ 2 days/week
- Nocturnal awakenings ≤ 2 /month
- No interference with activities
- Exacerbations ≤ 1 /year

MILD PERSISTENT

- Daytime symptoms > 2 but < 7 days/week
- Nocturnal awakenings 3 to 4/month
- Minor interference with activities
- Exacerbations ≥ 2 /year



Asthma Classification

MODERATE PERSISTENT

- Daily symptoms
- Nocturnal awakenings >1/week but not daily
- Daily SABA use
- Some activity limitation
- Exacerbations ≥ 2 /year

SEVERE PERSISTENT

- Symptoms through day
- Nocturnal awakenings most nights
- SABA several times/day
- Activity very limited
- Exacerbations ≥ 2 /year



AGES 0–4 YEARS: STEPWISE APPROACH FOR MANAGEMENT OF 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 low-dose ICS-LABA and PRN SABA [▲] or Daily low-dose ICS + montelukast* or 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 weeks • Step down if possible (if asthma is well controlled for at least 3 consecutive months) 						
Consult with asthma specialist if Step 3 or higher is required. Consider consultation at Step 2.						
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; 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.

December 2020



Akron Children's Hospital

AGES 5-11 YEARS: STEPWISE APPROACH FOR MANAGEMENT OF 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						
<ul style="list-style-type: none"> • 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) <p>Consult with asthma specialist if Step 4 or higher is required. Consider consultation at Step 3.</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; 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.

December 2020



Akron Children's Hospital

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.

December 2020



Akron Children's Hospital

Global Initiative for Asthma (GINA) Changes

- Use of low-dose ICS-formoterol (Symbicort) for **as needed** relief of symptoms in intermittent asthma
 - Rapid onset of action (3-5 minutes)
 - Long-acting relief (up to 12 hours)
 - Treats airway constriction and underlying inflammation



Global Initiative for Asthma (GINA) Changes

- Applies only for mild intermittent asthma
- Also only applies to formoterol (with ICS)
- May use ICS formoterol 2 puffs q20min up to 6 puffs. Max: 12 puffs/day
- “Anti-inflammatory rescue”
 - More symptoms > more use > more steroid dose > more inflammatory suppression
- *This is off-label in the United States*



Step Therapy

Intermittent – Step 1

SABA as needed

Alternatives:

Low-dose ICS whenever
SABA used

Short course low-dose ICS
at start of URI

Mild persistent – Step 2

Daily low-dose ICS and
SABA as needed

Alternatives:

Daily LTRA or Low-dose
ICS whenever SABA used



Step Therapy

Moderate Persistent – Step 3

Daily medium-dose ICS or low-dose ICS-LABA with SABA as needed

Alternatives:

Low-dose ICS or ICS-LABA with LTRA

Daily and PRN low-dose ICS-LABA



Step Therapy

Severe Persistent – Step 4

Daily medium-dose ICS-LABA with SABA as needed

Alternatives:

Daily medium-dose ICS with LTRA

Daily high-dose ICS

Daily and PRN medium-dose ICS-LABA



Outpatient Treatment Plan

- Through your history-taking you deduce that Joshua has mild persistent asthma
 - Daytime symptoms >2 but <7 days/week
 - Nocturnal awakenings 3 to 4/month
 - Minor interference with activities
 - Exacerbations ≥ 2 /year



Step UP Considerations

- Assess adherence before escalation
- Underuse of controller medications
 - Absence of a consistent routine for administration
 - Poor technique administering medications
 - Poor parent/caregiver understanding of asthma control
 - Parent/caregiver concerns about the medications



Step DOWN Considerations

- Step-down considered when asthma controlled for at least 3 months
- Asthma Severity
 - A longer period of control often preferred in severe asthma
- Step-down therapy commonly attempted in the summer

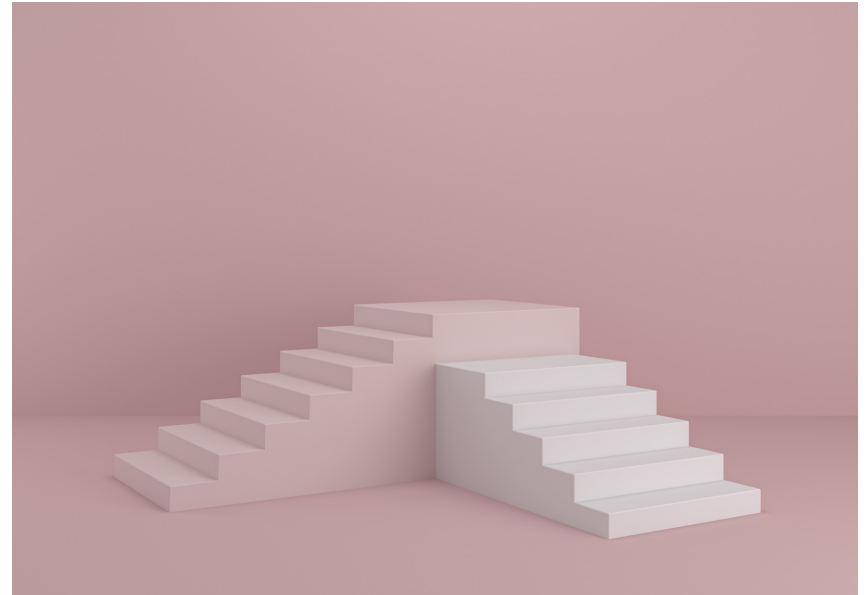


Step DOWN Considerations

- Step-down often delayed at the start of the school year or onset of the winter respiratory season
- Step-down more slowly in patients with chronic exposures to potential triggers
 - tobacco smoke, pet exposure
- Reassess step-down in 1-2 months



***Step up when you
have to, step down
when you can.***



Inpatient Asthma Management

CASE STUDY



Akron Children's Hospital

Asthma Exacerbation

- Joshua arrives at the emergency room with difficulty breathing. He has been using his albuterol at home every 4 hours without improvement. He has had cough and congestion for 4-5 days. This is his second trip to the emergency room in the last 2 months for difficulty breathing.



Emergency Department

- Initial vital signs are T- 37 C, HR 125, RR 36 BP 105/68, oxygen saturation 90%
- Physical exam:
 - **General**- Awake and alert, he is ill appearing, nontoxic in moderate respiratory distress.
 - **Neuro**- Alert, oriented at age-appropriate level, PERRLA,
 - **HEENT**- clear drainage from nares, Tonsils with no erythema or exudate, sclera and conjunctiva clear- no drainage. TM's non-bulging, no erythema. No cervical lymphadenopathy
 - **Resp**- He has intercostal and subcostal retractions. Lung sounds are with inspiratory and expiratory wheezes bilaterally. He is speaking in short sentences.
 - **Cardiac**- He is warm and well perfused, tachycardic with normal S1/S2, no murmur noted
 - **GI**- abdomen soft and non-tender, he has had no decrease in intake or output
 - **Musculoskeletal**- Moves all extremities purposefully, normal tone and strength
 - **Skin**- Warm. Dry, well perfused. No rashes noted



PAS Scoring Tool

	1	2	3
Respiratory Rate 1-3 years 4-5 years 6-12 years >12 years	≤34 ≤30 ≤26 ≤23	35-39 31-35 27-31 24-27	≥40 ≥36 ≥31 ≥28
Oxygen Requirement	>95% on room air	90-95% on room air	<90% on room air or requiring any amount of O ₂
Retractions	None or intercostal	Intercostal and substernal OR nasal flaring (infants)	Intercostal, substernal, and supraclavicular OR nasal flaring and head bobbing (infants)
Dyspnea 1-4 years	Normal feeding, vocalization, and play	Decreased appetite, coughing after play, hyperactivity	Stops eating or drinking, stops playing, OR drowsy and confused and/or grunting
Dyspnea > 5 years	Counts to ≥10 in one breath OR speaks in complete sentences	Counts to 4-6 in one breath OR speaks in partial sentences	Counts to ≤3 in one breath OR speaks in single words OR grunts
Auscultation	Normal breath sounds, end expiratory wheezes	Expiratory wheezing	Inspiratory and expiratory wheezing to diminished breath sounds
Total PAS	Mild 5-7	Moderate 8-11	Severe ≥12



Emergency Department Pathway

Initial PAS

RR-3

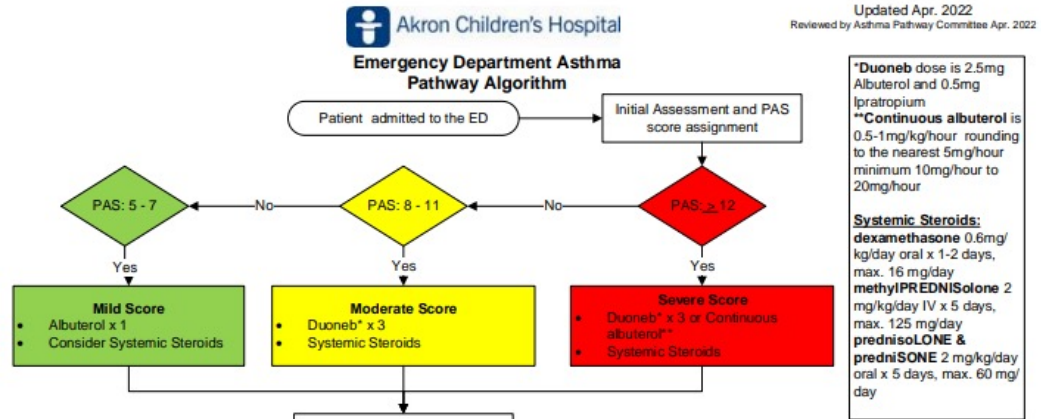
Oxygen requirement- 2

Retractions 2

Dyspnea 2

Auscultation-3

Total Score-12



ED course

- Dexamethasone vs Prednisone
 - Dexamethasone has a longer half life than prednisone
 - 2 doses of dexamethasone 24 hours apart is as effective as a 5 day course of prednisone for acute asthma exacerbation
 - Studies show increased compliance with dexamethasone, patients can be given a dose in the ED and then sent home with a dose for 24 hours later without a trip to pharmacy



Emergency Department Pathway

Re-assess PAS

RR-2

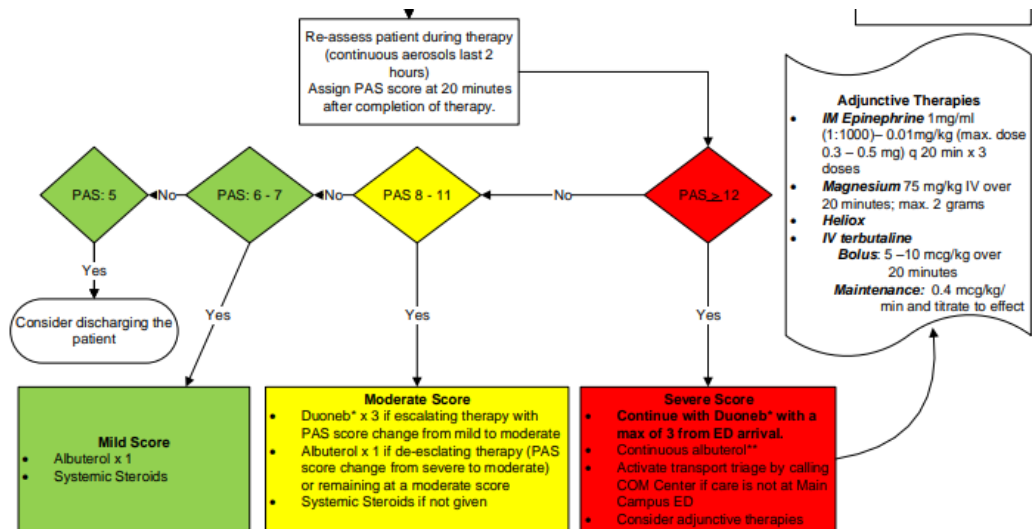
Oxygen requirement- 2

Retractions 2

Dyspnea 2

Auscultation-2

Total Score-10



Emergency Department Pathway

Re-assess PAS

RR-2

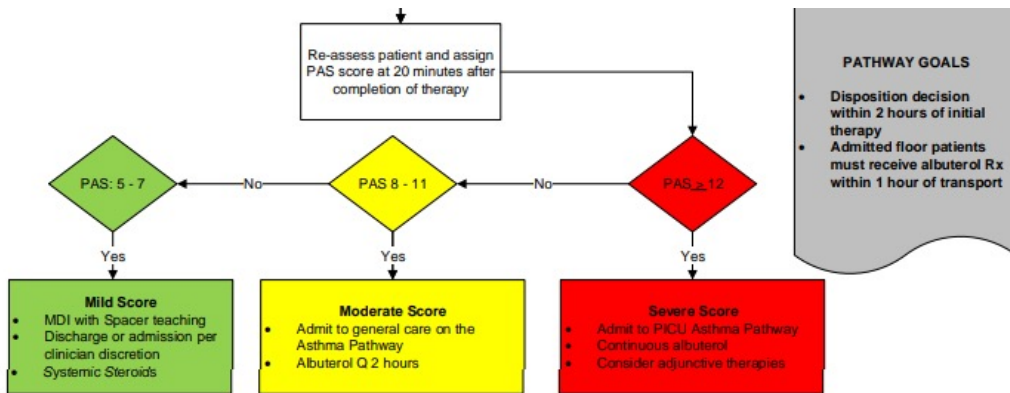
Oxygen requirement- 2

Retractions 1

Dyspnea 1

Auscultation-2

Total Score-8



ASTHMA HISTORY AND BASELINE ASSESSMENT

Age at first wheeze

Known triggers

Smoke exposure

Indoor pets

Frequency of wheezing/cough

Nighttime cough/awakening

Exercise induced symptoms

Number of school days missed this year due to asthma



Asthma H&P

Unscheduled visits for asthma in the past 12 months

Number of times albuterol used on a weekly basis when not sick

Steroid use in past 12 months

Does Albuterol use typically occur during activity.

On a controller medication?
How often does he use it?

Number of previous admissions for asthma/difficulty breathing
Last admission

ICU admissions
Last ICU admission
Prior intubations for asthma

Seen by asthma or allergy specialist
Name of specialist
Date of last visit



Floor treatment

Re-assess PAS

RR-1

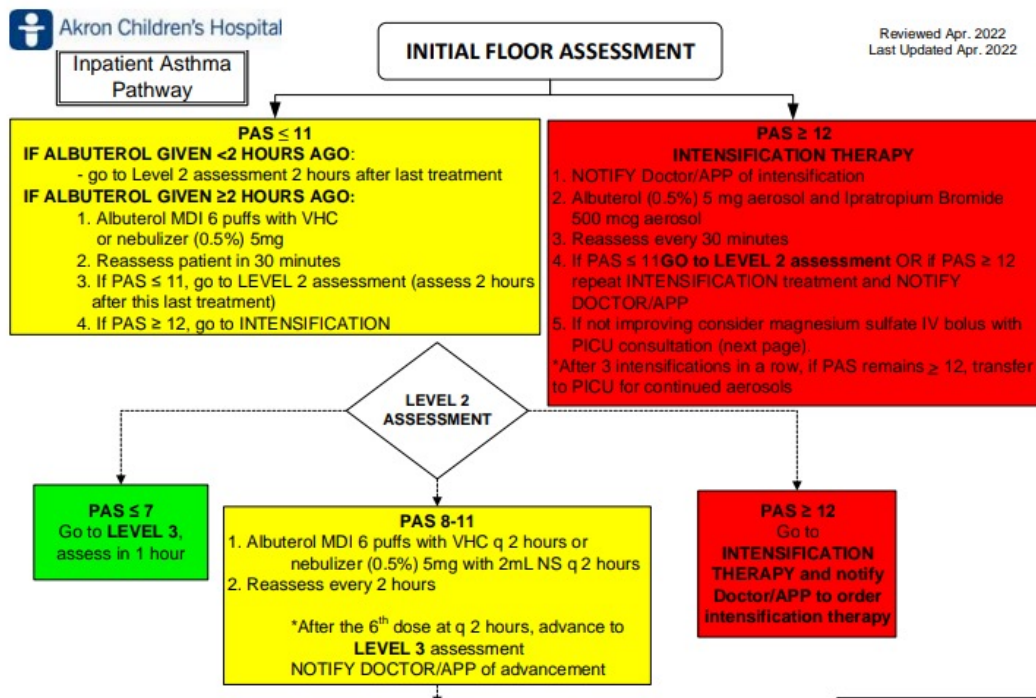
Oxygen requirement- 2

Retractions 1

Dyspnea 1

Auscultation-2

Total Score-7



Floor treatment

Re-assess PAS

RR-1

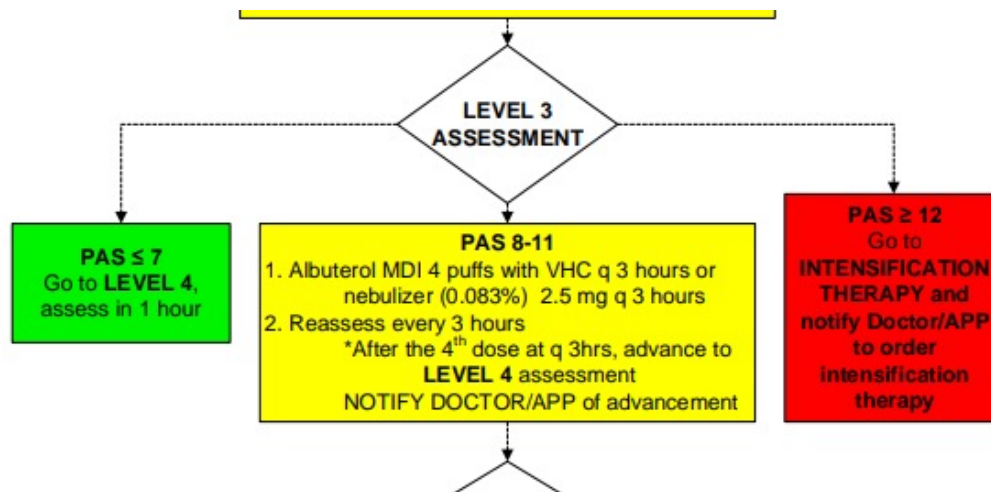
Oxygen requirement- 2

Retractions- 1

Dyspnea - 1

Auscultation-1

Total Score- 6



Floor treatment

Re-assess PAS

RR- 1

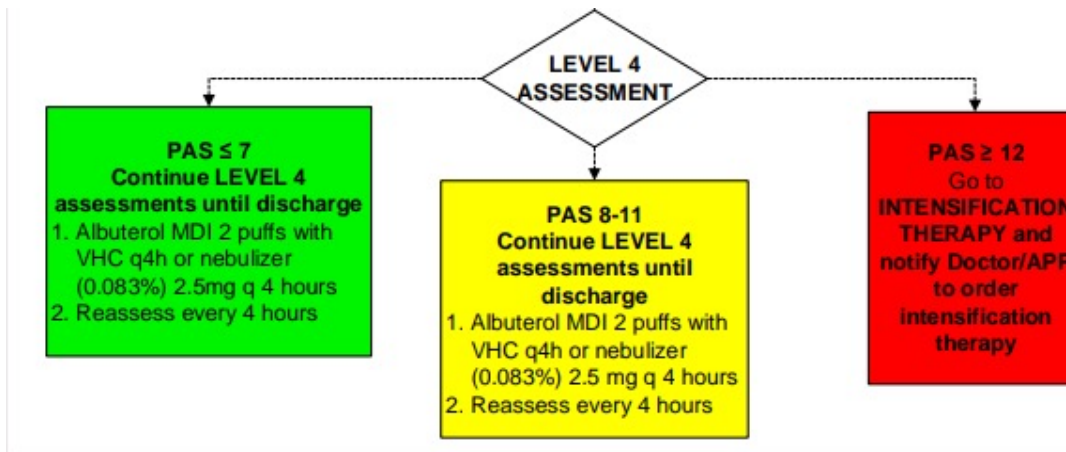
Oxygen requirement- 1

Retractions- 1

Dyspnea- 1

Auscultation- 1

Total Score- 5



Discharge



Asthma Treatment Plan (ATP)

Asthma Treatment Plan

Last updated/reviewed on: 10:13 AM [NIH EPR-3 Guidelines fo Asthma Classification and Management](#)

Last provided to family on: 10:13 AM

Asthma type:

exercise induced intermittent mild persistent moderate persistent

severe persistent other

Please provide additional "other" details in the comment box above

Asthma Triggers:

changes in weather cigarette smoke cockroaches emotions

environmental allergens exercise pets respiratory infection

scents other

Please provide additional "other" details in the comment box above

Asthma Care Provided By **External Clinics**

Please provide 'External Clinic' information if no matching department exist in asthma care provided by

FOR SCHOOL ONLY

Patient School Administration Instructions:

> **School Extra Instructions**

Expiration One year from date of Provider's signature



ATP

Daily Treatment Plan

No every day medicines needed Every day medicines needed as below

	Medication/Strength	Dose	Route	When to take
Inhaled Corticosteroids	PULMICORT NEBULIZER SOLUTION 0.5 ...	1 nebu	Inhalation	2 times ...
Add Inhaled Corticosteroids	AND OR			
Leukotriene Antagonist				
Antihistamines	CETIRIZINE 5 mg/5ml syrup	5 ml	Oral	daily as...
Add Antihistamines 2	AND OR			
Nasal Spray				
Add Nasal Spray 2	AND OR			
GERD				
Physical Activity				



ATP

Sick Treatment Plan

Medications

	Medication/Strength	Dose	Route	When to take
Rescue Medicine	ALBUTEROL Inhaler	2 puffs	Inhalat...	Right aw...
Add Rescue Medicine 2	AND OR			
Oral Steroids	PREDNISOLONE (15mg/5ml) Liquid	5 ml	Oral	2 times ...

abc | .? | + | Insert SmartText | 100%

Emergency Treatment Plan

Medications

	Medication/Strength	Dose	Route	When to take
Rescue Medicine	ALBUTEROL Inhaler	2 puffs	Inhalation	Right a...
Add Rescue Medicine 2	AND OR			



ATP

Follow-up with:

After Discharge Follow-up in:

 Days Weeks Months

Special Instructions



Use 2 puffs of Albuterol every 4 hours for the next 24 hours.
Take second dose of steroids tomorrow 10/13 before school.
Follow up with the asthma/immunology department and discuss need to have the Rx for steroids listed on your ATP.

Refresh to update before printing. Press F5 now OR use refresh button in Communication Mgmt letter.

[Printable Letter and School Treatment Plan Combined for Patient/Family](#)

[Printable Letter Version for Patient/Family](#)

[Printable School Treatment Plan for Patient/Family](#)

[Printable Spanish Letter Version for Patient/Family](#)

✓ Close

✗ Cancel



Akron Children's Hospital

Patient ATP

Asthma Triggers may include: colds/flu, respiratory infection, exercise

A flu shot is recommended, in the fall, for all children with asthma and their families.



Every Day Treatment And Physical Activity

- Breathing is easy
- No cough or wheeze
- Can work and play

Take all of these medicines every day.
- FLOVENT 44 inhaler (fluticasone) - 2 puffs - Inhalation - daily



Asthma is Getting Worse

- Increased cough or wheeze
- Tight Chest
- Shortness of breath
- Wake up at night
- First sign of getting a cold

If Connor is getting worse, have Connor take all the **every day** medications and also take this rescue medicine:

- ALBUTEROL Inhaler - 2 puffs - Inhalation - Right away

- Wait 15 minutes and see if the treatment(s) helped
- If NOT IMPROVING, go to emergency treatment below
- If BETTER, continue rescue medicine every 4-6 hours as needed for 1-2 days, **call the healthcare provider if not getting better**

If not getting better after 1-2 days start oral steroid: PREDNISOLONE (15mg/5ml) Liquid - 8 ml - Oral - 2 times daily for 5 days



Emergency

- Rescue medicine does not help
- Breathing is hard and fast
- Ribs or neck muscles show when breathing in
- Can't walk or talk well
- Feeling very scared

If Connor continues to worsen, have Connor take this rescue medicine:

- ALBUTEROL Inhaler - 4 puffs - Inhalation - Right Away

- Wait 15 minutes to see if the treatment(s) helped, if not, repeat every 15 minutes for a total of 3 doses
- If GETTING WORSE or NOT IMPROVING, **go to the hospital or call 9-1-1 as this could be a life threatening emergency!**
- If BETTER, continue rescue medicine every 4-6 hours as needed and call the healthcare provider for advice



Asthma Education

Methods of learning



Flu Shot

- People with asthma are at risk for flu complications even if their asthma is well controlled. The flu causes inflamed airways and lungs, which can cause an acute asthma exacerbation. They are more likely to develop pneumonia or serious health problems from the flu. It is recommended that every patient with asthma and their families get vaccinated for flu every year



High Risk patients

Patients with 3 ED visits
for Asthma in the last
year

Patients with 2 inpatient
admissions for asthma in
the past year

Any PICU admissions



Why Home Visits

Home visits have shown improvement in asthma control, health care use, environmental trigger reduction, clinical outcomes, Medicaid cost savings and a positive return on investment



Home visits

Possible environmental triggers in the home

Medication technique or compliance concerns

Multiple admissions for asthma

Any high risk asthmatic

Caregiver lacks knowledge on how to manage asthma at home or when to escalate care

Parental interest in receiving more education on asthma management

- Consider home nurse visits for the following patients



Home Visits

- Scripts for discussing asthma home nurse visits

We would like to arrange for an Akron Children's Home Care nurse to come to your home to provide a check up on how your child's lungs and asthma are doing after you leave the hospital

The nurse will listen to your child's lungs, review your child's asthma medicines with you (including how and when to use them), and will contact your child's primary care provider if there are any clarifications needed

The hospital is a stressful environment for caregivers, and it is often easier to process new information in a less stressful environment like your home



Home Visit Scripts continued

The nurse will go over your child's asthma treatment plan and answer any questions that you may have about how to use the plan

The nurse will also make certain that your child's school has a copy of their asthma treatment plan so your child's asthma will also be well cared for at school

The visits will be done by nurses from Akron Children's Home Care and are completely covered for patients with Medicaid or Medicaid HMO insurance. For patients with commercial insurance, families will only be responsible for their plan's co-pay after their deductions are met.



Home visits

- These visits are not connected in any way to Child Protective Services and are not being requested because there is a concern about the care you are providing for your child, only as a resource to help you continue to learn about how to care for your child's asthma and decrease the chances of them having bad asthma attacks in the future



Managing Asthma Triggers at Home (MATH)

- Program for any patient living in Summit , Medina or Portage counties with moderate or severe persistent asthma that you think may have possible environmental triggers in the home (ex. Mold, tobacco)



Managing Asthma Triggers at Home (MATH)

- The program's goal is to assist children with **moderate persistent to severe asthma** and their families in reducing exposure to asthma triggers in the home environment.
- The limiting factor for participation in the program is that they must live in **Summit, Medina or Portage Counties**. There is **no income restrictions/requirement** for participation.



- The client/family will be provided a **home assessment, equipment and educational tools** to help them reduce their exposures.
 - The assessment will be performed by a trained inspector (holding the Registered Environmental Health Specialist credential from the State of Ohio) and will involve a walk-through of the home to identify potential triggers and to collect basic information about the home.
 - The educational tools are texts, ACT scores and information to assist the family in making asthma-safer decisions for the child from the environmental standpoint.



- The equipment package is constructed to make an asthma-safer space in the home and includes:
 - HEPA single room air filtration unit
 - HEPA vacuum
 - Furnace filters
 - Bed and pillow allergen bags
 - A spacer for medical provision
 - A carbon monoxide detector for general safety



- MATH program is all about environmental trigger control where as home health nurse program will focus on medical management aspects (with small environmental focus).
- Some patients are appropriate for both MATH and Home Health. Location is more restrictive for MATH as well as only for moderate persistent/severe persistent as there are not endless resources.



- Ambulatory referral for patients in **Summit, Medina, and Portage counties** who have **moderate or severe persistent asthma** that you think may benefit from **environmental support** for their asthma
- Place AMB Referral to MATH (Managing Asthma Triggers at Home) with Summit County Public Health in the discharge navigator or as future outpatient orders
- Currently available for asthma specialists, Locust Pediatrics and Inpatient with plans to expand further



When to Refer

- Uncertainty with diagnosis of asthma
- Life-threatening asthma exacerbation (ie ICU, intubation)
- Hospitalization for asthma and/or 2+ bursts of oral steroids in 1 year
- Treating at Step 2 for child under 5, Step 4 for children over 5 or adults, or when Step 5 therapy indicated
- Lack of control after 3-6 months of active therapy/monitoring
- Unresponsive to therapy
- Concomitant conditions
 - Nasal polyposis, chronic sinusitis, severe rhinitis, allergic bronchopulmonary aspergillosis, vocal cord dysfunction, laryngotracheomalacia
- Additional for diagnostic tests or treatment
 - Spirometry, skin testing, allergen immunotherapy, biologics



Follow up

- High risk- follow up with Asthma specialist



Questions?

- jpressman@akronchildrens.org
- mgeorge@akronchildrens.org



References

[https://www.aaaai.org/Aaaai/media/Media-Library-PDFs/Allergist%20Resources/Statements%20and%20Practice%20Parameters/A-Consensus-Approach-to-the-Primary-Prevention-of-Food-Allergy-Through-Nutrition-Jan-21-\(1\).pdf](https://www.aaaai.org/Aaaai/media/Media-Library-PDFs/Allergist%20Resources/Statements%20and%20Practice%20Parameters/A-Consensus-Approach-to-the-Primary-Prevention-of-Food-Allergy-Through-Nutrition-Jan-21-(1).pdf)

<http://www.nhlbi.nih.gov/guidelines/asthma/asthgdln.htm>

<https://www.sciencedirect.com/science/article/pii/S2213219822007164/pdf?md5=73bbf4836bb66c20c47c7eba21f8eb51&pid=1-s2.0-S2213219822007164-main.pdf>

<https://akronchildrens.sharepoint.com/sites/mykidsnet-mytools-clinicalpathways/SitePages/Asthma-Pathway.aspx>

www.uptodate.com

