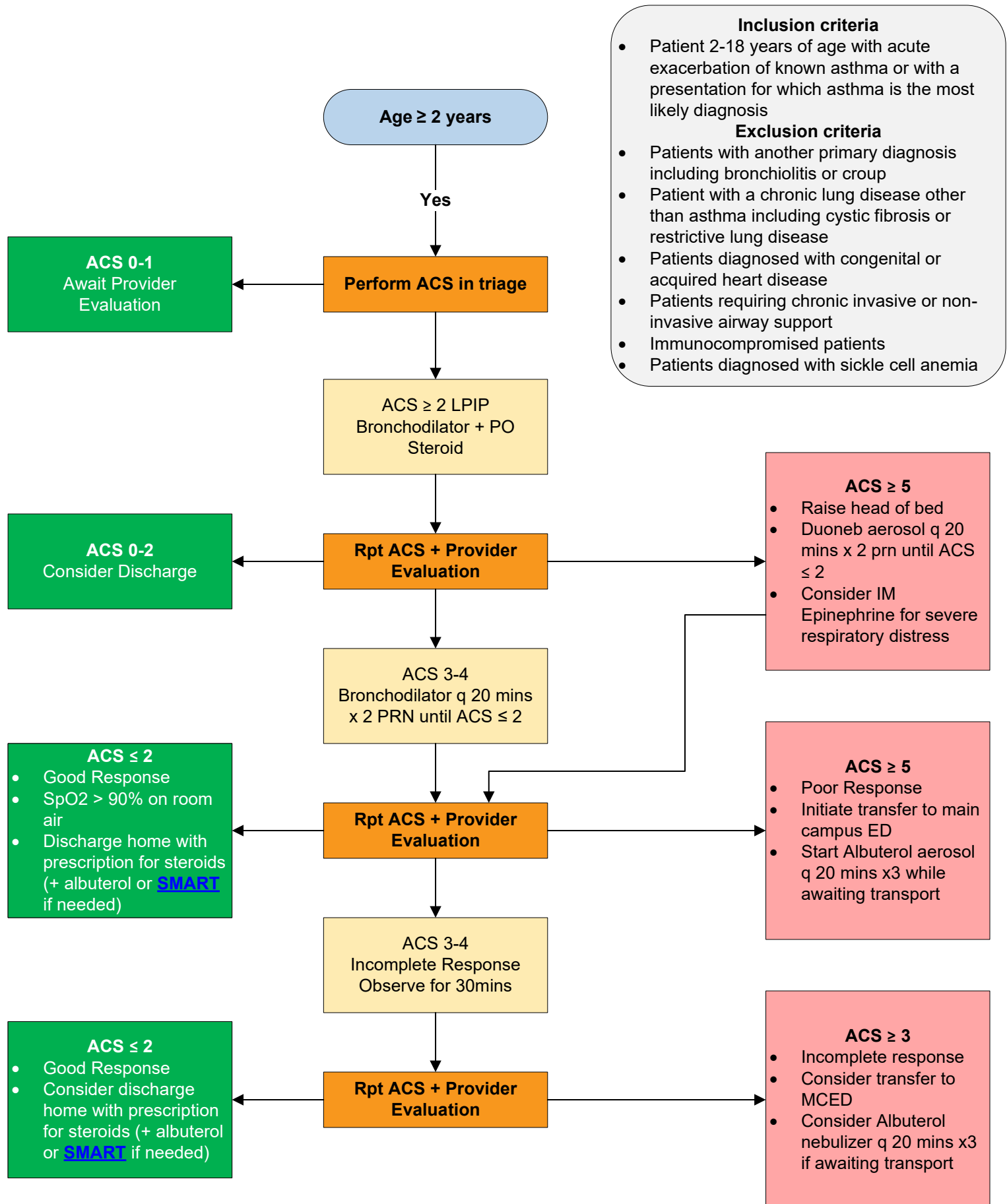


Asthma Clinical Pathway

Urgent Care (UC)



Definition & Diagnosis

- Clinicians should diagnose an asthma exacerbation on the basis of history and physical examination.
- A typical presentation of an asthma exacerbation is characterized by acute or subacute episodes of progressively worsening shortness of breath, cough, wheezing, chest tightness, or some combination of these symptoms caused by decreases in expiratory airflow in a patient with known asthma
- In a patient without a previous diagnosis of asthma, an asthma exacerbation is more likely in a patient with:
 - Recurrent wheezing and/or chronic cough
 - Prior bronchodilator or corticosteroid use
 - Past medical history of eczema or food/environmental allergies
 - Family history of asthma, eczema or allergies

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Differential Diagnoses

Acute

- Bronchiolitis
- Pneumonia
- Foreign body

Chronic

- Vocal cord dysfunction
- Anatomic anomalies such as: vascular rings, laryngeal web
- Laryngotracheomalacia
- CF

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Asthma Clinical Score

Scoring Key (Maximum score is "13")	0	1	2	3	4
Tachypnea (see reference)	No	Yes			
O2 Requirement to keep SaO2 $\geq$ 92%	RA	$\leq$ 2 liters/31%	$>$ 2 liters/31% $\leq$ 4 liters/50%	$>$ 4 liters/50%	
Wheezing	None	End expiratory or scattered wheeze	Expiratory wheeze throughout	Inspiratory and expiratory wheeze	"Silent chest" (no air movement)
Air Movement	Normal/Good	Fair	Tight	Silent	
Retractions (see references)	None	One type of retraction	Two or more types of retractions		

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Recommended Treatments

Oxygen is recommended for most patients.

Administer supplemental oxygen (by nasal cannula or mask, whichever is best tolerated) to maintain an SaO₂ >92 percent (1,2)

Short-acting-beta-agonist (SABA) treatment is recommended for all patients.

In the urgent care (UC), three treatments of SABA spaced every 20 minutes can be safely given as initial therapy. Thereafter, the frequency of administration varies according to the improvement in airflow obstruction, associated symptoms, and the occurrence of side effects. In mild or moderate exacerbations, equivalent bronchodilation can be achieved either by high doses (4–12 puffs) of a SABA by MDI and spacer in infants, children, and adults under the supervision of trained personnel or by nebulizer therapy. However, nebulizer therapy may be preferred for patients who are unable to cooperate effectively in using an MDI because of their age, agitation, or severity of the exacerbation (1, 2).

Ipratropium bromide

In the UC, adding 3 doses of ipratropium bromide (0.5 mg nebulizer solution or 8 puffs by MDI in adults; 0.25–0.5 mg nebulizer solution or 4–8 puffs by MDI in children) to a selective SABA produces additional bronchodilation, and results in fewer hospital admissions, particularly in patients who have severe airflow obstruction (2).

Systemic corticosteroids are recommended for most patients in the urgent care (UC).

Administration of steroids within the first hour has shown to reduce hospitalization rates in children with acute asthma (6). Give Prednisone/prednisolone 2 mg/kg PO q day, Max: 60 mg for 5 days or Dexamethasone 0.6mg/kg PO x Q day x 2 doses. There is no difference in relapse rate between dexamethasone and prednisone/prednisolone. Dexamethasone has some advantages over prednisone/prednisolone including palatability, cost, and decreased frequency of administration. Oral administration of prednisone has been shown to have effects equivalent to those of intravenous methylprednisolone and is usually preferred because it is less invasive. Give a total of 5 day course of prednisone/prednisolone or a total of 2 day course of dexamethasone following UC discharge to prevent early relapse. Give supplemental doses of oral corticosteroids to patients who take them regularly, even if the exacerbation is mild (1,2,7).

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Treatments Not Recommended

Antibiotics are not generally recommended for the treatment of acute asthma exacerbations except as needed for comorbid conditions. Bacterial, Chlamydia, or Mycoplasma infections infrequently contribute to exacerbations of asthma therefore, the use of antibiotics is generally reserved for patients who have fever and purulent sputum and for patients who have evidence of pneumonia. When the presence of bacterial sinusitis is strongly suspected, treat with antibiotics (1).

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Discharge

- Prescription for oral steroids
- If **not using** Single Maintenance and Reliever Therapy (SMART)
 - Albuterol home pack
- If **using** SMART (using 1 inhaler for both controller and rescue)
 - NO albuterol home pack
 - Refill SMART Inhaler if needed from medication list
- Follow-up with Primary Care Physician in 1 week

Single Maintenance and Reliever Therapy (SMART)

New initiation of SMART therapy should be considered outside of an acute exacerbation at PCP or subspecialty follow up through shared decision making with the family.

ICS + Long-Acting Beta Agonist (LABA)

BOLD = Preferred, no PA required for Medicaid patients

Inhaler Mechanism	Drug	Age (years)	Low Dose Inhaler Strength	Medium Dose Inhaler Strength	Dose and Frequency	Max Dose
Metered-dose Inhalers (MDI) • Aerosolized inhalation that is pushed to activate • Shake before use • Needs primed • Use with spacer	Symbicort® HFA Budesonide / formoterol	4-11	80-4.5 mcg	160-4.5 mcg	2 puffs BID and 1 puff PRN	8 puffs
		≥ 12	80-4.5 mcg	160-4.5 mcg	2 puffs BID and 2 puffs PRN	12 puffs
	Dulera® HFA Mometasone / formoterol	4-11	50-5 mcg	100-5 mcg	2 puffs BID and 1 puff PRN	8 puffs
		≥ 12	50-5 mcg	100-5 mcg	2 puffs BID and 2 puffs PRN	12 puffs

Expert Panel Working Group of the National Heart, Lung, and Blood Institute (NHLBI) administered and coordinated National Asthma Education and Prevention Program Coordinating Committee (NAEPPCC), Cloutier MM, et al. 2020 Focused Updates to the Asthma Management Guidelines: A Report from the National Asthma Education and Prevention Program Coordinating Committee Expert Panel Working Group. J Allergy Clin Immunol. 2020 Dec;146(6):1217-1270.

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Years Algorithm](#)

Metrics

Goal:

To appropriately determine asthma severity and provide optimal treatments while minimizing urgent care length of stay.

Process measure:

- Order set utilization
- Discharge smart set utilization

Outcome measures:

- Percent of patients presenting with asthma exacerbations who receive steroids in the UC
- Percent of patients who receive steroids within 60 min
- Time to disposition
- UC Length of Stay

Balancing Measure:

- 48 hour return to UC rate

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Clinical Pathway Development

This clinical pathway was developed using the process described in the NCH Clinical Pathway Development Manual Version 6, 2022. Clinical Pathways at Nationwide Children's Hospital (NCH) are standards which provide general guidance to clinicians. Patient choice, clinician judgment, and other relevant factors in diagnosing and treating patients remain central to the selection of diagnostic tests and therapy. The ordering provider assumes all risks associated with care decisions. NCH assumes no responsibility for any adverse consequences, errors, or omissions that may arise from the use or reliance on these guidelines. NCH's clinical pathways are reviewed periodically for consistency with new evidence; however, new developments may not be represented, and NCH makes no guarantees, representations, or warranties with respect to the information provided in this clinical pathway.

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