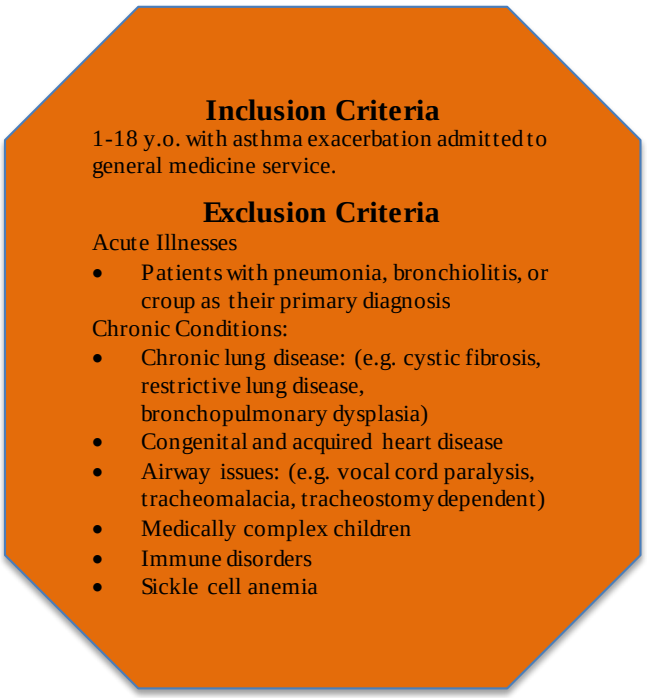
Pediatric Asthma: Criteria and Respiratory Score



RESPIRATORY SCORE (RS)

VARIABLE	0 POINTS	1 POINTS	2 POINTS	3 POINTS
RR				
<2 mo		≤ 60	61 – 69	≥ 70
2-12 mo		≤ 50	51 – 59	≥ 60
1-2 yr		≤ 40	41 – 44	≥ 45
2-3 yr		≤ 34	35 – 39	≥ 40
4-5 yr		≤ 30	31 – 35	≥ 36
6-12 yr		≤ 26	27 – 30	≥ 31
> 12 yr		≤ 23	24 – 27	≥ 28
RETRACTIONS				
	None	Subcostal or intercostal	2 of the following: subcostal, intercostal, substernal, OR nasal flaring (infant)	3 of the following: subcostal, intercostal, substernal, suprasternal, supraclavicular OR nasal flaring/head bobbing (infant)
DYSPNEA				
0-2 years	Normal feeding, vocalizations and activity	1 of the following: difficulty feeding, decreased vocalization or agitated	2 of the following: difficulty feeding, decreased vocalization or agitated	Stops feeding, no vocalization, drowsy or confused
2-4 years	Normal feeding, vocalizations and play	1 of the following: decreased appetite, increased coughing after play, hyperactivity	2 of the following: decreased appetite, increased coughing after play, hyperactivity	Stops eating or drinking, stops playing, OR drowsy and confused
>4 years	Counts to ≥ 10 in one breath	Counts to 7-9 in one breath	Counts to 4-6 in one breath	Counts to ≤ 3 in one breath
AUSCULTATION				
	Normal breathing, no wheezing present	End-expiratory wheeze only	Expiratory wheeze only (greater than end-expiratory wheeze)	Inspiratory and expiratory wheeze OR diminished breath sounds OR both

Pediatric Asthma: ED Management

Assess and Score at Triage (**Time 0**)

Supplemental 02 should be administered to keep 02 saturation ≥90%

1st HOUR (ED) PHASE 1a

Time 0 RS 1-5
- Albuterol Neb 5mg
- Dexamethasone 0.6mg/kg x 1 (16mg max)

Time 0 RS 6-12
- Albuterol Neb 7.5mg, repeat after 10minutes (Total: 15mg)
- Ipratropium neb 1mg, after 10 minutes can give another 0.5mg (no extra dose if < 2yo pts)
- Dexamethasone 0.6mg/kg x 1 (16mg max)

Assess and Score at end of 1st hour (Time 1)

2nd HOUR (ED) PHASE 1b

Time 1 RS 1-4
- If at Time 0 was RS 1-5, discharge now
- If at Time 0 was RS 6-9, observe for at least 1hour
- If at Time 0 was RS 10-12, observe for at least 2 hours

Time 1 RS 5-8
- Albuterol Neb 5mg

Time 1 RS 9-12
- Albuterol Neb 7.5mg, repeat after 10minutes (Total: 15mg)
- Ipratropium neb 1mg, after 10 minutes can give another 0.5mg—if not yet given during the first hour (no extra 0.5mg dose if < 2yo pts)
- Magnesium Sulfate IV 50mg/kg x1 (max 2 g) for age ≥2 years –give one NS bolus prior to Mag. Mag should be given over 30 mins
  *Must watch for 2hrs prior to admitting/transferring pt

Assess and Score at end of 2nd hour (Time 2)

3rd HOUR (ED) PHASE1c

Time 2 RS 1-4
- Discharge now

Time 2 RS 5-8
- Albuterol Neb 5mg
- Ipratropium neb 1mg, after 10 minutes can give another 0.5mg—if not previously given in phase Ia/b (no extra 0.5mg dose if < 2yo pts)

Time 2 RS 9-12
- ICU consult (transfer) for RS 10-12
- Albuterol continuous neb 20 mg/hr
- Magnesium Sulfate IV 50mg/kg x1 (max 2g) for age ≥2 years—if not yet given before (only get a total of one Mag dose in ER). Give one NS bolus prior to Mag
  *Must watch for 2hrs prior to admitting/transfer
- If undecided (on transfer), consult with Peds attending in whether to admit for Phase II Inpatient

Assess and Score at end of 3rd hour (Time 3)

4th HOUR (ED) PHASE1d

Time 3 RS 1-8
Admit to Inpatient Phase III

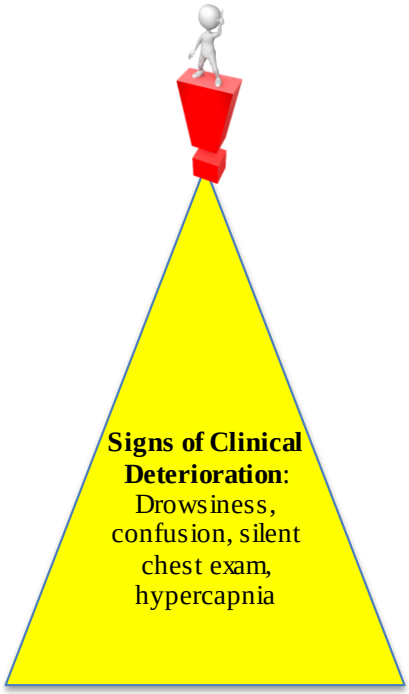
Time 3 RS 9-10
Albuterol continuous neb 20 mg x 1 hr
- Huddle with : Floor Team Leader, Floor Team and consider either transfer/PICU or Peds Admit
- Consult Peds to admit for Inpatient Phase III or transfer

Time 3 RS 11-12
Transfer for ICU care

Urgent Care Transfer Criteria
- Score > 8 following first hour of nebulized albuterol—send by EMS
- Score 5-8 following 5mg nebulized albuterol in second hour—send by EMS
- Signs of clinical deterioration or poor clinical response to therapy

ED Discharge Criteria
- Time 1 RS 1-4 for minimum of 1 hour (Patients with an initial RS of 10-12 should be observed for 2 hours prior to discharge)
- Tolerating oral intake
- Adequate family teaching
- Follow-up established

Discharge Instructions
- Continue to use albuterol (2.5mg if ≤4yrs old; 5mg if ≥5yrs old) every 4 hours until seen by provider
- Follow up with provider within 24-48 hours (as possible)



Signs of Clinical Deterioration: Drowsiness, confusion, silent chest exam, hypercapnia

Pediatric Asthma: Inpatient Management

Supplemental 02 should be administered to keep 02 saturation ≥ 90% (when awake); ≥ 88% when sleeping

PHASE II: INPATIENT
- Albuterol Cont Neb 15mg/ hr
- Solumedrol 1mg/kg BID (max 80mg/day)
- H2-Blocker
- Assessment Q1H
- Advance after 1hr of treatment for score 1-8

PHASE III: INPATIENT
- Albuterol Neb 5mg Q2H
- Prednisone 1mg/kg BID (max 80mg/day)
- Assessment Q2H
- Begin discharge teaching and planning

PHASE IV: INPATIENT
- Albuterol Neb 5mg Q4H
- Assessment Q4H
- If ≥5yrs old –after 1-2 trials of 5mg Q4H & doing well, ok to discharge

PHASE V: INPATIENT
- If 0-4yrs old, Albuterol Neb 2.5mg Q4H
- Assessment Q4 hours
- After 1-2 trials of Q4H & doing well, ok to discharge

Call RT Team Leader, Peds Team Leader, Physician:
- Signs of clinical deterioration
- RS 9-10 on continuous albuterol for 2 hours in phase II
- RS 11-12

RISK Watch on Inpatient
- Dashboard until RS<9

ICU Transfer
- RS 11-12 with 2-3 hours continuous
- Signs of clinical deterioration

PHASE Progression (Phases III-V)

RS 1-4: Advance after one treatment at this phase
RS 5-8: Continue therapy at this phase
RS 9-12: Step back to previous phase
Do not progress to next phase if pt still requires oxygen

RN/RT to notify MD:
- For all phase transitions
- Failure to advance on pathway after 3 hours on continuous albuterol or after 12 hours in all other phases

Phase Change by Respiratory Score is the standard of care for patients on the asthma pathway
- Scoring is performed by RN & RT

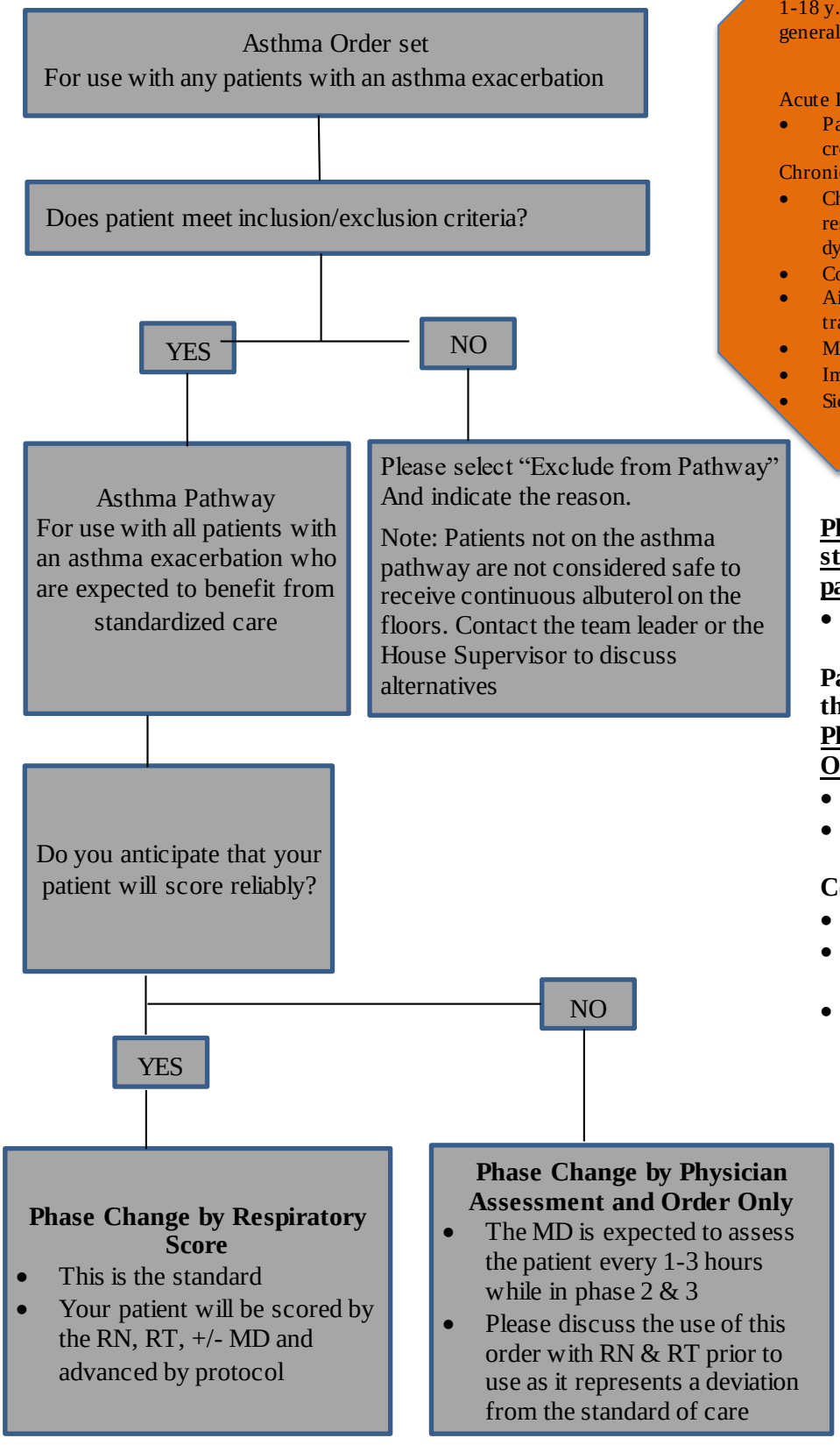
Patient with unique clinical conditions that complicate their asthma treatment:
<u>Phase Change by Physician Assessment & Order Only</u>
- Scoring by RN, RT & MD
- Provider to assess pt every 1-3 hrs

Conditions in which this is appropriate:
- Patient transferred from ICU
- Complex asthma history (e.g. hx intubation for asthma)
- Medical comorbidity (e.g. morbid obesity)

Discharge Criteria
- In Phase V with RS 1-4
- Observe for minimum of 2 hours after initial treatment in Phase IV/V
- Tolerating oral intake
- No supplemental oxygen (stable on RA for at least 12hrs)
- Completion of asthma education and asthma management plan
- Follow-up established

Discharge Instructions:
- Asthma Education packet w/ Asthma Management Plan
- Follow-up with PCP in 24-48 hours (as possible)

Asthma v.6.2: Appropriate Use of the Pathway



Inclusion Criteria

1-18 y.o. with asthma exacerbation admitted to general medicine service.

Exclusion Criteria

Acute Illnesses

- Patients with pneumonia, bronchiolitis, or croup as their primary diagnosis

Chronic Conditions:

- Chronic lung disease: (e.g. cystic fibrosis, restrictive lung disease, bronchopulmonary dysplasia)
- Congenital and acquired heart disease
- Airway issues: (e.g. vocal cord paralysis, tracheomalacia, tracheostomy dependent)
- Medically complex children
- Immune disorders
- Sickle cell anemia

Phase Change by Respiratory Score is the standard of care for patients on the asthma pathway

- Scoring is performed by RN & RT, +/- MD

Patients with unique clinical conditions that complicate their asthma treatment: Phase Change by Physician Assessment & Order Only

- Scoring by RN, RT & MD
- MD to assess pt every 1-3 hrs

Conditions in which this is appropriate:

- Patient transferred from ICU
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Respiratory Scoring Tool

How are patients scored using the tool?

The respiratory scoring tool consists of four elements that make up the respiratory assessment of the patient in distress. You assess each component distinctly and add them to make a total between 1-12.

- A patient's RR is 1-3 whereas all other categories are scored 0-3
- The Seattle Children's Hospital respiratory scoring tool has been validated for interobserver reliability

RR	Four Elements of Assessment
(1-3)	Respiratory rate (RR): assessed over 60 seconds
(0-3)	Retractions: work of breathing
(0-3)	Dyspnea: shortness of breath
(0-3)	Auscultation: wheezing on lung exam
(1-12)	**Total**

- *There are other scoring tools that have validated such as the pulmonary score (PS), pediatric asthma severity score (PASS) and pediatric respiratory assessment measure (PRAM) but no single tool that has been adopted universally*

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