
بسم الله الرحمن الرحیم

Acute Asthma Managment

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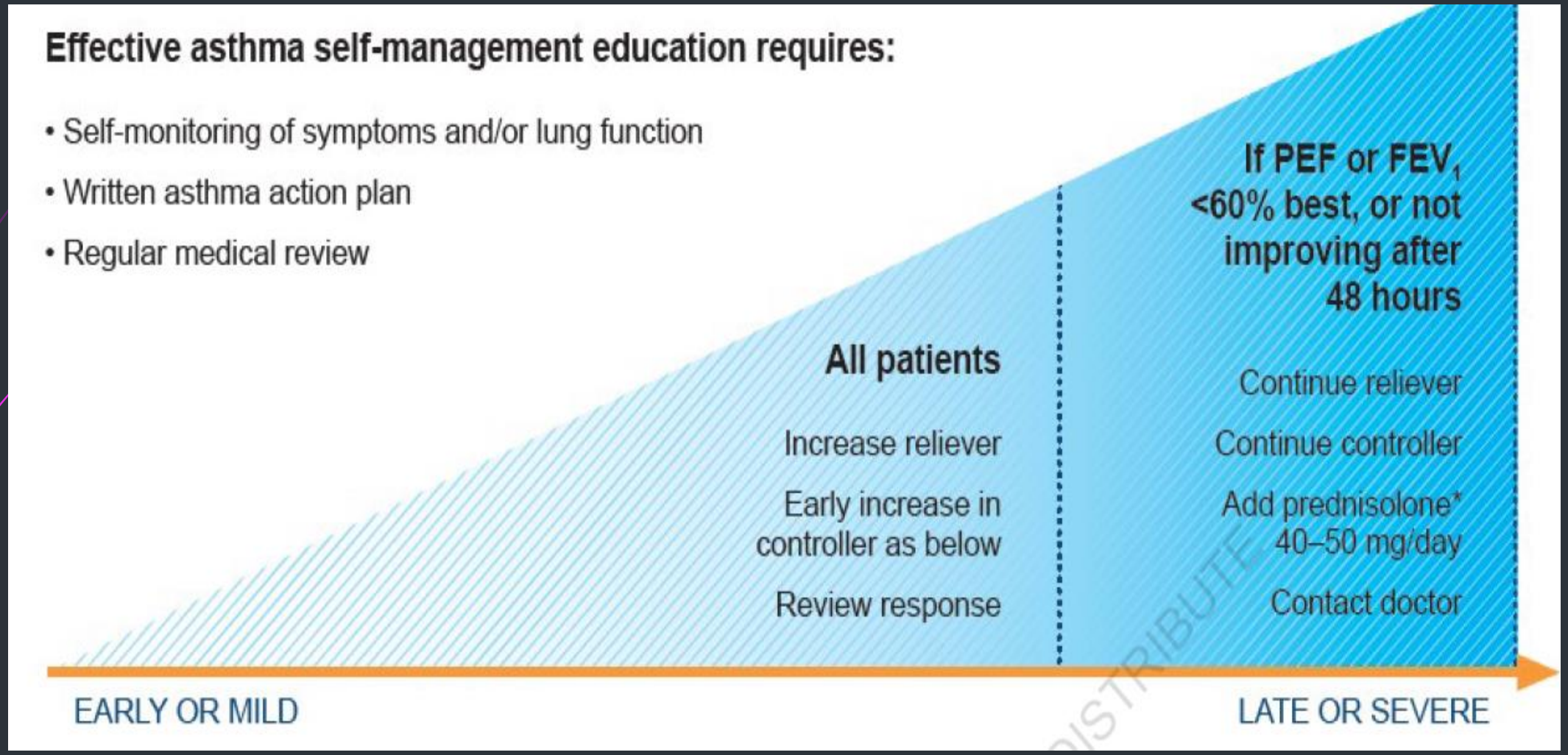
- Asthma is a chronic inflammatory condition
- present the emergency department with an acute worsening of dyspnea, wheezing, or cough or progressive decrease in lung function
- A small percentage of these patients with acute asthma will require hospitalization
- relapses in discharged patients remain common.

- Acute presentations are precipitated by many factors
- the most common : viral respiratory infections, environmental allergies, and irritant exposures (e.g., air pollution)
- For individuals without regular asthma care, an undefined portion of ED visits likely reflects poor control of chronic asthma with or without associated common asthma triggers such as upper respiratory infection

Asthma related death risk factors

Box 4-1. Factors that increase the risk of asthma-related death

- A history of near-fatal asthma requiring intubation and mechanical ventilation[557]
- Hospitalization[557,558] or emergency care visit for asthma in the past year
- Currently using or having recently stopped using oral corticosteroids (a marker of event severity)[557]
- Not currently using inhaled corticosteroids[90,557]
- Over-use of SABAs, especially use of more than one canister of salbutamol (or equivalent) monthly[89,107,559]
- Poor adherence with ICS-containing medications and/or poor adherence with (or lack of) a written asthma action plan[100]
- A history of psychiatric disease or psychosocial problems[100]
- Food allergy in a patient with asthma[452,560]
- Several comorbidities including pneumonia, diabetes and arrhythmias were independently associated with an increased risk of death after hospitalization for an asthma exacerbation.[[558]


Effective asthma self-management education requires:
• Self-monitoring of symptoms and/or lung function
• Written asthma action plan
• Regular medical review
All patients
Increase reliever
Early increase in controller as below
Review response
If PEF or FEV1 <60% best, or not improving after 48 hours
Continue reliever
Continue controller
Add prednisolone* 40–50 mg/day
Contact doctor
EARLY OR MILD
LATE OR SEVERE

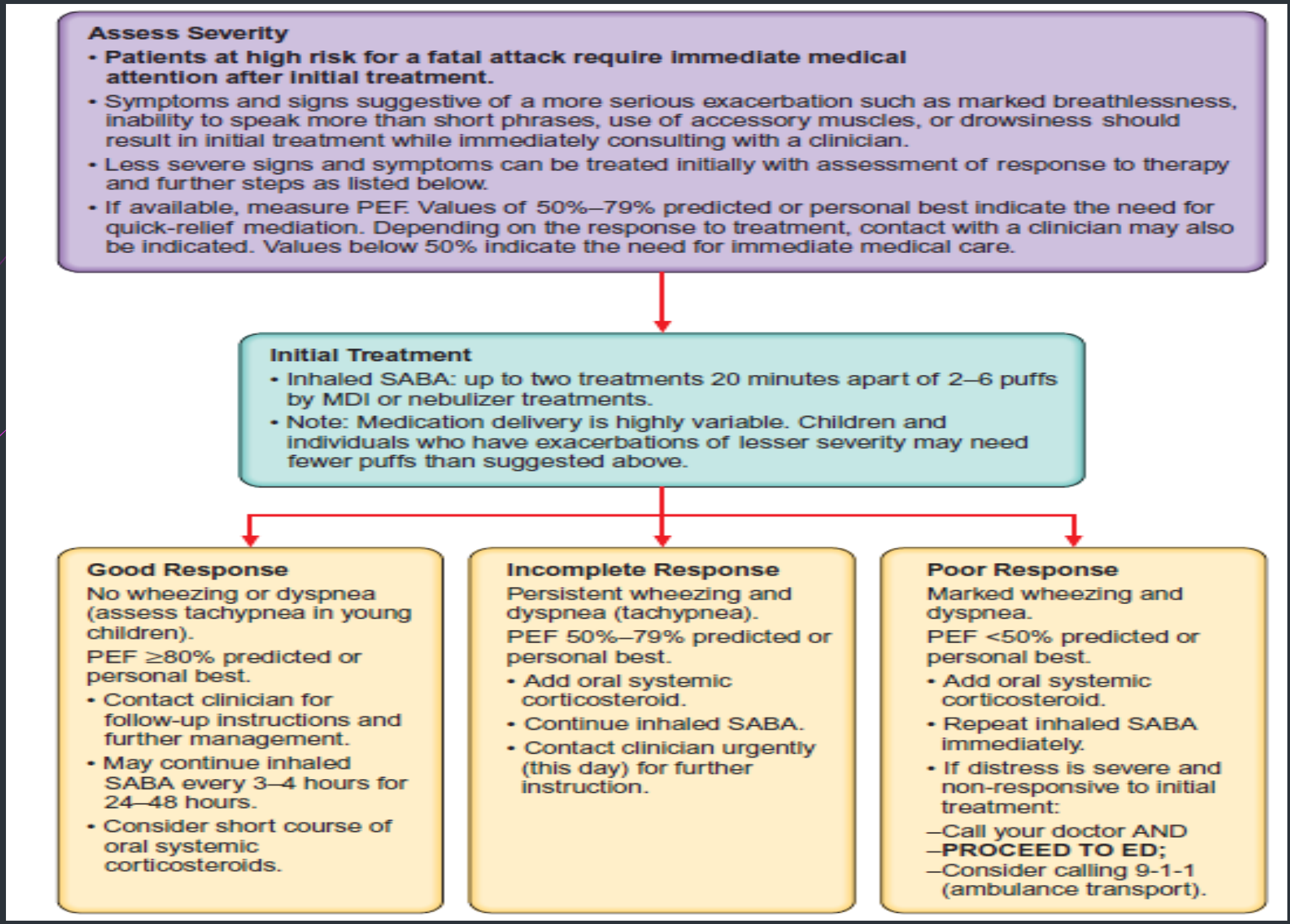
- دستورالعمل مکتوب باید شامل موارد زیر باشد:
- نحوه مصرف داروهای نگهدارنده آسم بیمار
- زمان و نحوه نیاز به افزایش داروها و شروع کورتون خو راکی
- نحوه تماس با پزشک در موارد عدم پاسخ به درمان

Medication	Short-term change (1–2 weeks) for worsening asthma	Evidence level
Increase usual reliever:		
Low dose ICS-formoterol †	Increase frequency of as-needed ICS-formoterol †	A
Short-acting beta$_2$-agonist (SABA)	Increase frequency of SABA use For pMDI, add spacer	A A
Increase usual controller:		
Maintenance and reliever ICS-formoterol †	Continue maintenance ICS-formoterol and increase reliever ICS-formoterol as needed. †	A
Maintenance ICS with SABA as reliever	In adults and adolescents, quadruple ICS dose. In children with high adherence, 5x increase in ICS dose is not effective.	B
Maintenance ICS-formoterol with SABA as reliever †	Quadruple maintenance ICS-formoterol. †	B
Maintenance ICS plus other LABA with SABA as reliever	Step up to higher dose formulation of ICS plus other LABA In adults, consider adding a separate ICS inhaler to quadruple ICS dose.	B D
Add oral corticosteroids (OCS) and contact doctor; review before ceasing		
OCS (prednisone or prednisolone)	Add OCS for severe exacerbations (e.g. PEF or FEV_1 <60% personal best or predicted), or patient not responding to treatment over 48 hours. Once started, morning dosing is preferable.	A
	Adults: prednisolone 40-50mg/day, usually for 5–7 days. *Children 6–11 years*: 1–2 mg/kg/day (maximum 40 mg) usually for 3–5 days.	D
	Tapering is not needed if OCS are prescribed for <2 weeks.	B

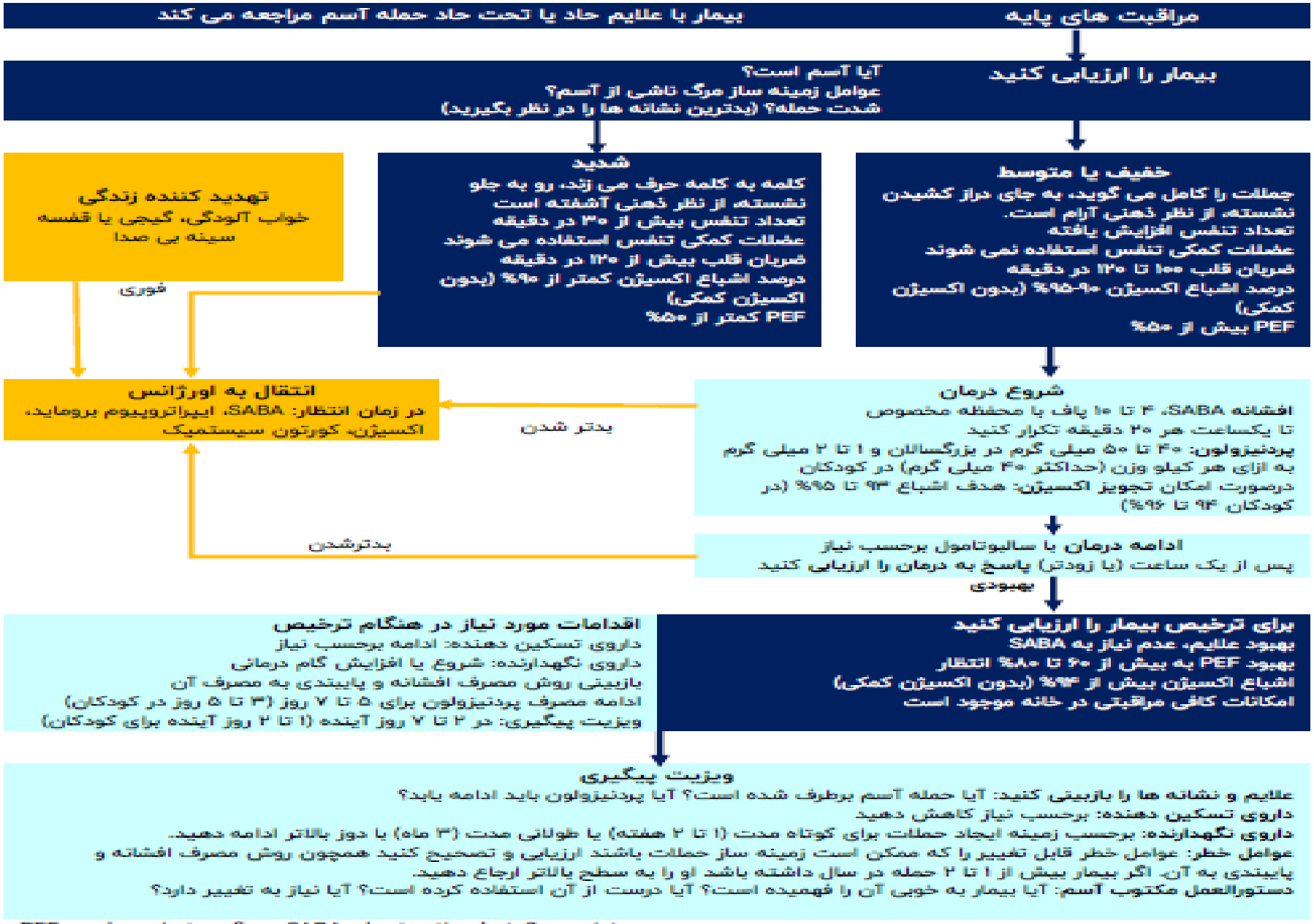
- در صورت وجود موارد زیر توصیه به مراجعه پزشکی
- بدتر شدن سریع علایم
- نیاز مجدد به SABAطی ۳ ساعت
- نیاز به بیش از ۸ بار استفاده از بکلومتازون + فورموترول) ۴۸ میکروگرم فورموترول(یا بیش از ۱۲ بار بودزوناید + فورموترول) ۷۲ میکروگرم فورموترول(در یک شبانه روز.

- Urgent visit if:
- 1.continiue to worsen despite following action plan
- 2.suddenly asthma attack

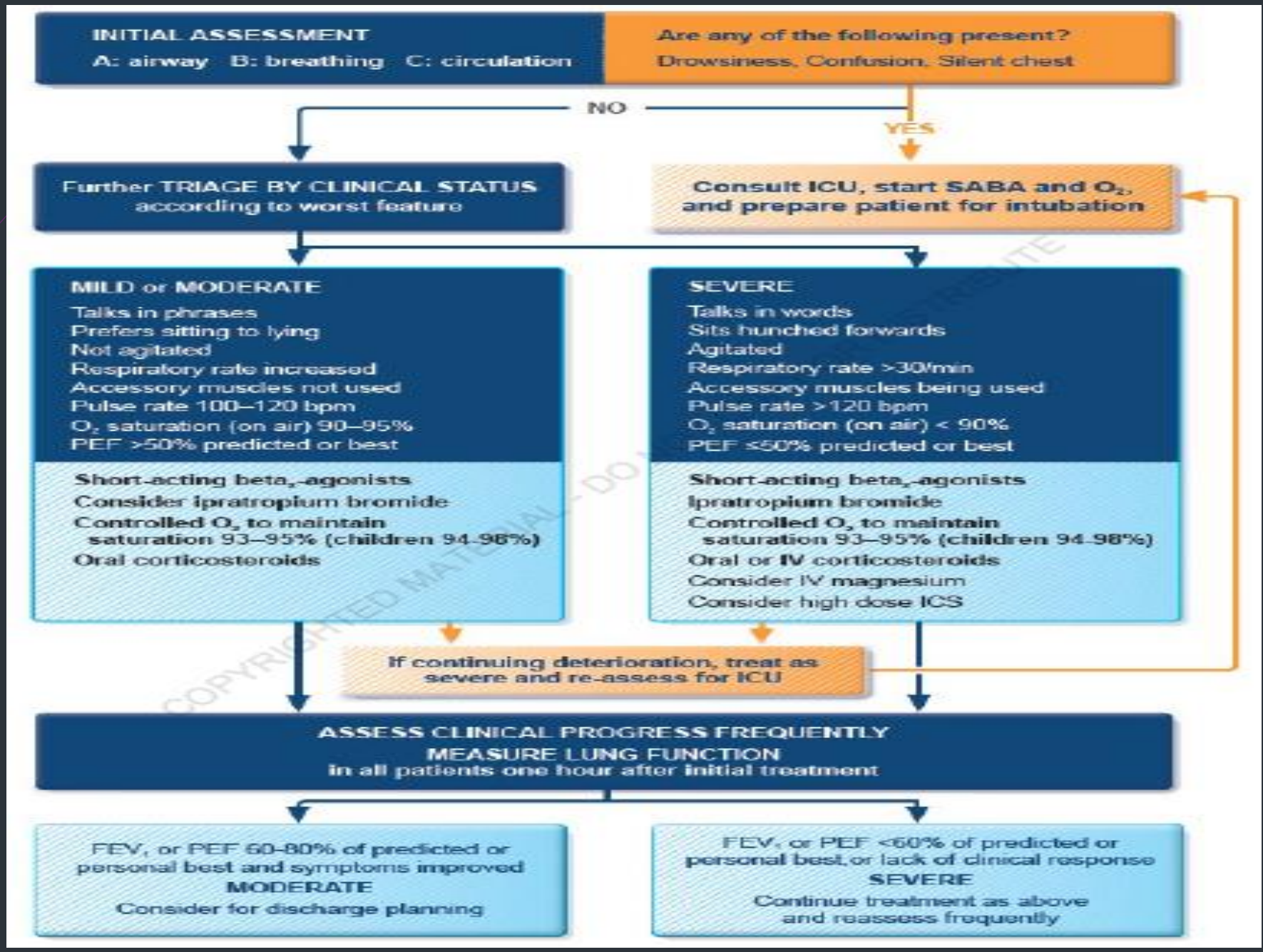
- Follow up after self managed attack:
- Semi urgent =1-2 wk after attack or before ceasing OCS


Assess Severity
• Patients at high risk for a fatal attack require immediate medical attention after initial treatment.
• Symptoms and signs suggestive of a more serious exacerbation such as marked breathlessness, inability to speak more than short phrases, use of accessory muscles, or drowsiness should result in initial treatment while immediately consulting with a clinician.
• Less severe signs and symptoms can be treated initially with assessment of response to therapy and further steps as listed below.
• If available, measure PEF. Values of 50%–79% predicted or personal best indicate the need for quick-relief mediation. Depending on the response to treatment, contact with a clinician may also be indicated. Values below 50% indicate the need for immediate medical care.
Initial Treatment
• Inhaled SABA: up to two treatments 20 minutes apart of 2–6 puffs by MDI or nebulizer treatments.
• Note: Medication delivery is highly variable. Children and individuals who have exacerbations of lesser severity may need fewer puffs than suggested above.
Good Response
No wheezing or dyspnea (assess tachypnea in young children).
PEF ≥80% predicted or personal best.
• Contact clinician for follow-up instructions and further management.
• May continue inhaled SABA every 3–4 hours for 24–48 hours.
• Consider short course of oral systemic corticosteroids.
Incomplete Response
Persistent wheezing and dyspnea (tachypnea).
PEF 50%–79% predicted or personal best.
• Add oral systemic corticosteroid.
• Continue inhaled SABA.
• Contact clinician urgently (this day) for further instruction.
Poor Response
Marked wheezing and dyspnea.
PEF <50% predicted or personal best.
• Add oral systemic corticosteroid.
• Repeat inhaled SABA immediately.
• If distress is severe and non-responsive to initial treatment:
–Call your doctor AND
–PROCEED TO ED;
–Consider calling 9-1-1 (ambulance transport).

جدول ۱۱. مدیریت درمان حمله آسم در مراقبت های تندرستی پایه



PEF: peak expiratory flow; SABA: short-acting beta2-agonist


INITIAL ASSESSMENT
A: airway B: breathing C: circulation
Are any of the following present?
Drowsiness, Confusion, Silent chest
NO
YES
Further TRIAGE BY CLINICAL STATUS according to worst feature
Consult ICU, start SABA and O_2, and prepare patient for intubation
MILD or MODERATE
Talks in phrases
Prefers sitting to lying
Not agitated
Respiratory rate increased
Accessory muscles not used
Pulse rate 100–120 bpm
O_2 saturation (on air) 90–95%
PEF >50% predicted or best
Short-acting beta$_2$-agonists
Consider ipratropium bromide
Controlled O_2 to maintain saturation 93–95% (children 94-98%)
Oral corticosteroids
SEVERE
Talks in words
Sits hunched forwards
Agitated
Respiratory rate >30/min
Accessory muscles being used
Pulse rate >120 bpm
O_2 saturation (on air) < 90%
PEF ≤50% predicted or best
Short-acting beta$_2$-agonists
Ipratropium bromide
Controlled O_2 to maintain saturation 93–95% (children 94-98%)
Oral or IV corticosteroids
Consider IV magnesium
Consider high dose ICS
If continuing deterioration, treat as severe and re-assess for ICU
ASSESS CLINICAL PROGRESS FREQUENTLY
MEASURE LUNG FUNCTION
in all patients one hour after initial treatment
FEV$_1$ or PEF 60-80% of predicted or personal best and symptoms improved
MODERATE
Consider for discharge planning
FEV$_1$ or PEF <60% of predicted or personal best, or lack of clinical response
SEVERE
Continue treatment as above and reassess frequently

EVALUATION

- a brief history

1. details of the current exacerbation (e.g., time of onset, potential causes)
2. severity of symptoms
3. response to any treatment given before presentation
4. all current medications and time of last dose
5. the patient's asthma history
6. other comorbid conditions
7. Any symptom for anaphylaxis
8. Risk factors for asthma realated death

EVALUATION

- brief physical examination

1. patient status (e.g., alertness, fluid status, respiratory distress)
2. vital signs (including pulse oximetry)
3. chest findings (e.g.,use of accessory muscles, air movement, crackles, and wheezing)
4. possible complications e.g., pneumonia, pneumothorax,

5. in children, the examination also should attempt to rule out upperairway obstruction (e.g., foreign bodies).

- Most patients who have an asthma exacerbation do not require any initial studies
  - Pulse oximetry <90% ,predict need for hospitalization
  - PEF for patients more than 5 year old
  - Do not routinely request CXR

Initial treatment

- Oxygen supplement
- Repetitive Inhaled SABA
- Oral systemic corticosteroids
- anticholinergics

Inhaled Short-Acting β2-Agonists (SABA)

- Adult:4–8 puffs every 20 minutes up to 4 hours, then every1–4 hours as needed
- Child:4–8 puffs every 20 minutes for 3 doses, then every 1–4 hours inhalation maneuver as needed

Oxygen

- maintain an arterial oxygen saturation (SaO2) of 93-95%
- 94-98% in pregnant women and in patients with cardiac disease and children 6-11 yr
- In general, SaO2 should be monitored until the patient demonstrates a clear response to bronchodilator therapy.

Systemic Corticosteroids

- The early use of systemic corticosteroids (i.e., within 1 hour of the ED presentation) delivered by oral or intravenous routes
- use 40–60 mg in single or 2 divided doses for total of 5–7days in adults
- children: 1–2 mg/kg/day maximum 40 mg/day for 3–5 days
- Indications in at home:

1. Fail to respond to increased dose of controller and reliever after 2-3 days
2. FEV1 less than 60
3. Hx of sudden severe exacerbation

- **Start OCS in emergency ward if:**
- SABA treatment fails to achieve lasting improvement
- Exacerbation developed while patient was on OCS
- History of exacerbation that needed OCS

Inhaled Corticosteroids

- Emerging evidence also supports their use for acute asthma in the ED setting
- inhaled corticosteroids are a reasonable addition for patients with moderate to severe asthma exacerbations, they should not be considered a replacement for systemic corticosteroids
- Increase the dose or prescribe if is not used yet

Anticholinergics

- ***Ipratropium Bromide***
- For severe exacerbations
- child:4–8 puffs every 20 minutes as needed up to 3 hours.
- Adults:8 puffs every 20 minutes as needed up to 3 hours

Magnesium sulfate

- Consider for severe exacerbations lead to hospitalization
- intravenous $MgSO_4$ in patients :

1. life-threatening exacerbations
2. exacerbations remain in the severe category after 1 hour of intensive conventional therapy

- Recommended dose is 1.2 to 2 g given intravenously over 20 minutes in adults
- 25 to 100 mg/kg in children (total maximum dose of 2 g

- Aminophylline not recommended
- LTRAs not recommended for acute asthma

Review response

- Review response of symptom,saturation and lung function after 1 hour
- **Good Response**

1. • FEV1 or PEF 70% (GINA > 60%)
2. • Response sustained 60 minutes after last treatment
3. • No distress
4. • Physical exam: normal

hospitalization

- Decide according to :
- Response to treatment
- Clinical status
- Lung function
- Ability to manage at home

- Admission:

1. FEV1 or PEF < 40%
2. PCO2 >42 mm Hg
3. Physical exam: symptoms severe, drowsiness, confusion

Discharge home

- Lung function PEF >70%
- Normal physical exam
- Sustained response 1 hr after last treatment

Discharge Home

- • Continue treatment with inhaled SABA or low dose ICS-formetrol as needed
- • Continue short course of oral systemic corticosteroid
- • Consider initiation of an ICS or stepping up ICS dose
- • Patient education
- • Review medications, including inhaler technique
- • Review/initiate action plan
- • Recommend close medical follow-up : 2-7 days later


Thank You
For Your
Attention