



SINA
Saudi Initiative for Asthma
المبادرة السعودية للربو و المساسية

The Saudi Initiative for Asthma 2019



EASY ASTHMA FLOWCHARTS®

**A QUICK GUIDE FOR ASTHMA
MANAGEMENT IN ADULTS
AND CHILDREN > 12 YEARS**

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INITIAL MANAGEMENT OF ACUTE ASTHMA IN ADULTS & CHILDREN > 12 YEARS

Assess Asthma Severity by History, Physical Examination, Oxygen Saturation, and PEFR

Moderate

- Talking Phrases or full sentences
- Agitated but alert
- Respiratory Rate 20-30/min
- May or may not use accessory muscles
- Heart Rate <120/min
- SaO₂ on R/A ≥92%
- PEFR of 50-75% of predicted

Severe

- Talking only words or unable to complete sentence
- Agitated
- Respiratory Rate >30/min
- Use of accessory muscles
- Heart Rate >120/min
- SaO₂ on R/A <92%
- PEFR of 30-50% of predicted

Life Threatening

- Unable to talk
- Confused, drowsy, or coma
- Respiratory Rate >30/min or in respiratory failure
- Use of accessory muscles
- Heart Rate >120/min or bradycardia, and silent chest
- SaO₂ on R/A <90% or Cyanosis
- Normal or high PaCO₂, Acidosis
- PEFR of <30% of predicted

If patient has features of more than one level of severity, patient should be classified to the higher level and managed accordingly

Assess response to treatment by assessing mental status, respiratory rate, heart rate, SaO₂ and PEFR every 30-60 min

TREATMENT

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- Oxygen to keep SaO₂ ≥92%
- Salbutamol can be delivered by either:
 - MDI with spacer: 6-10 puffs every 20 min for 1 hour, then every 1-2 hours according to response
 - Nebulized salbutamol 2.5-5 mg every 20 min for 1 hour, then every 2 hours according to response
- Oral prednisone STAT: 1 mg/kg up to 50 mg

- Oxygen to keep SaO₂ ≥92%
- Salbutamol 2.5-5 mg every 20 min for 1 hour, then every 30-60 min according to response
- Ipratropium bromide 0.5 mg nebulized every 20 min for 1 hour, then every 4-6 hours as needed
- Oral prednisone 1 mg/kg up to 50 mg STAT; alternatively, IV hydrocortisone 200 mg/day or IV methylprednisolone 80 mg/day
- Consider magnesium sulphate 1-2 g IV over 20 min
- Consider ABG, CXR

- High flow oxygen to keep SaO₂ ≥92%
- Continuous nebulized salbutamol 10-15 mg by with ipratropium bromide 1.5 mg, then Q4-6 hour according to response
- IV hydrocortisone 200 mg/day or IV methylprednisolone 80 mg/day
- Magnesium sulphate 1-2 g IV over 20 min
- ABG, CXR, CBC, electrolytes, urea, creatinine, glucose, ECG

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FOLLOW-UP MANAGEMENT OF ACUTE ASTHMA IN ADULTS & CHILDREN > 12 YEARS

Reassess Asthma Severity by History, Physical Examination, Oxygen Saturation, and PEFR

Adequate Response

- Improving symptoms and stable vital signs
- PEFR >60% of predicted
- SaO₂ ≥92%
- Adequate response to be maintained for at least 4 hours
- Continue bronchodilators for 1-4 hour PRN
- Continue oral prednisone for 5-7 days

Upon Discharge

- Ensure stable on a 4 hourly inhaled bronchodilator
- Prescribe combination of inhaled steroids/LABA
- Review inhaler technique and encourage compliance
- Ensure adequate rescue treatment
- Provide written asthma self-management action plan
- Arrange follow up in pulmonary clinic or primary care clinic within a few days

Partial Response

- Minimal improvement of respiratory symptoms
- Stable vital signs
- SaO₂ ≥92% on oxygen therapy
- PEFR 30-50% of predicted
- Continue bronchodilators therapy (salbutamol with ipratropium bromide) every 1-4 hour

What is next?

- Continue oral prednisone 1mg/kg (maximum dose 50mg) daily; alternatively, IV hydrocortisone 200 mg/day or IV methylprednisolone 80 mg/day
- Observe closely for any signs of fatigue or exhaustion
- Monitor O₂ saturation and PEFR
- If the patients is responding, follow "adequate response" track
- If there is no adequate response after 4 hours, consider admission

Poor Response

- No improvement of respiratory symptoms
- Signs of fatigue or exhaustion
- PEFR <30% of predicted
- SaO₂ <92% with high flow oxygen
- ABG shows respiratory acidosis and/or rising PaCO₂

What is next?

- Continue bronchodilators and systematic steroids
- ICU consultation for possible admission

Saudi Thoracic Society (STS) Office
الجمعية السعودية لطب وجراحة الصدر

Tel: +966-11-2488966

Fax: +966-11-2487431

Mobile: +966-506426704

P. O. Box 106911, Riyadh 11676, KSA

Email: saudithoracicsociety@yahoo.com

Website: www.saudithoracic.com

OUTPATIENT MANAGEMENT OF ASTHMA FOR ADULTS AND ADOLESCENTS

Initiation

- History & physical examination
- Obtain ACT score and PEFR
- Patient education and environmental control of triggers/inducers
- Assess for aggravating factors e.g., GERD, allergic rhinitis
- Based on ACT result, initiate therapy as follows:

ACT ≥ 20

ACT = 16-19

ACT < 16

Patients with risk factors or fixed obstruction

No

Yes

STEP 1

STEP 2

Severe uncontrolled asthma at presentation

No

Yes

STEP 2

STEP 3

STEP 4

STEP 3

Recommended

- Low-medium dose ICS+LABA

Alternatives:

- Low-medium dose ICS+LTRA
- Medium-high dose ICS
- Low-medium dose ICS + Theophylline

STEP 2

Recommended

- Low dose ICS
- Formoterol/ICS combination as needed
- LTRA

STEP 1

Recommended

- Salbutamol Inhaler as needed

Adjustment and Maintenance

- Clinical assessment
- Obtain ACT score and PEFR
- Based on ACT, Adjust treatment as follows:
 - ACT = 20-25: Well controlled → Maintain treatment with lowest dose of ICS or step down
 - ACT < 19 : Uncontrolled → Step up

Introduce Self-management Plan

STEP 4

Recommended

- Medium-high dose ICS+LABA
- AND
- ±Tiotropium
- ± LTRA
- ±Theophylline

STEP 5

Recommended

- Step 4 options +
- Biologic therapy as appropriate

AND/ OR

- Long-term oral steroids
- Consider other modalities for severe asthma

Refer to a Specialist

A reliever inhaler on as needed basis (Salbutamol or Formoterol/ICS combination)

Patient education, environmental control, and management of comorbidities

ACT = Asthma Control Test, ICS = Inhaled Corticosteroids, LABA = Long Acting β_2 Agonist, LTRA = Leukotriene Receptor Antagonist, PEFR = Peak Expiratory Flow Rate