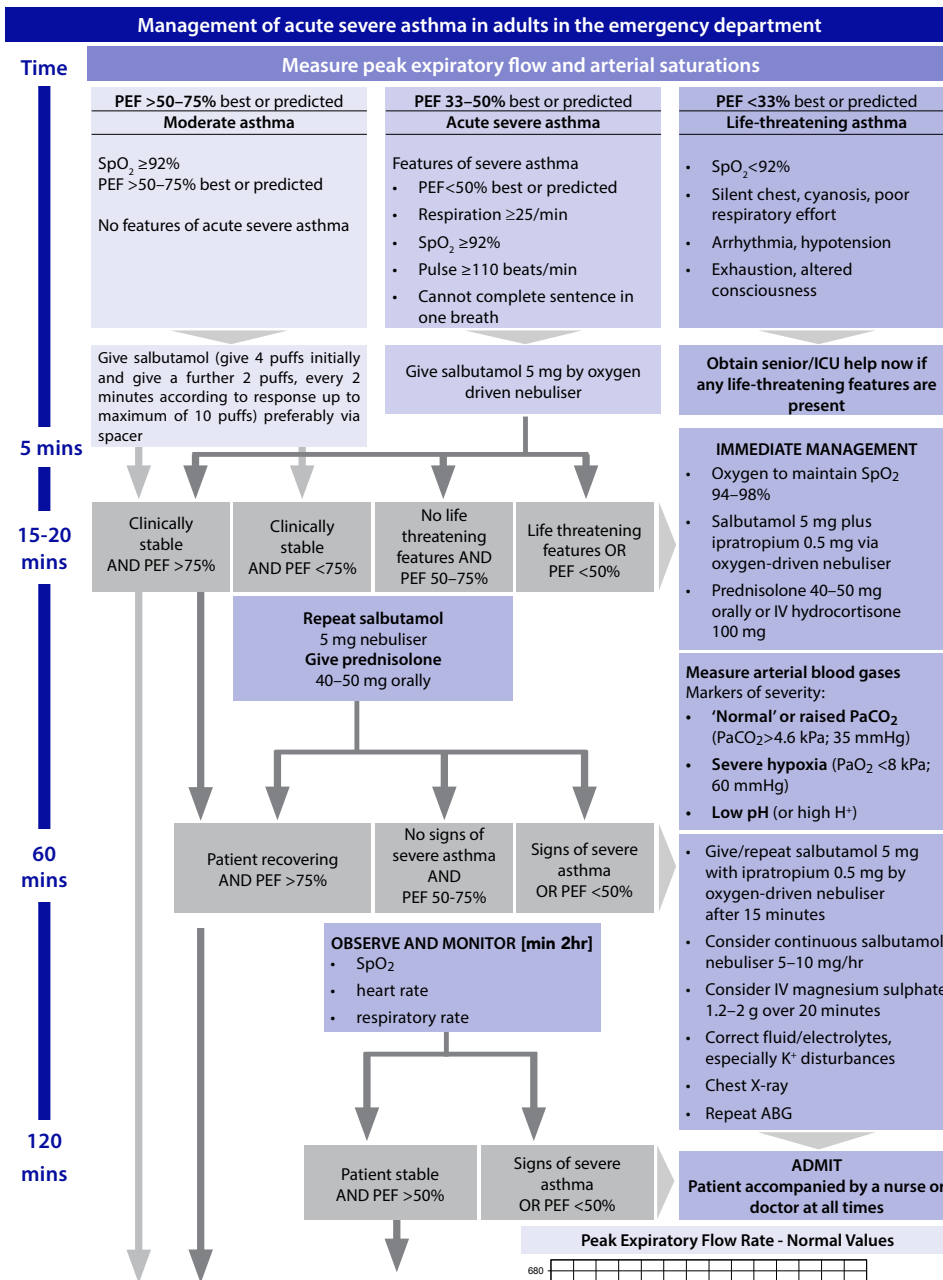


Emergency Department: Adult Asthma



If a patient has any life-threatening feature, measure arterial blood gases. No other investigations are needed for immediate management.

Blood gas markers of a life-threatening attack:

- 'Normal' (4.6-6 kPa, 35-45 mmHg) PaCO₂
- Severe hypoxia: PaO₂ <8 kPa (60 mmHg) irrespective of treatment with oxygen
- A low pH (or high H⁺)

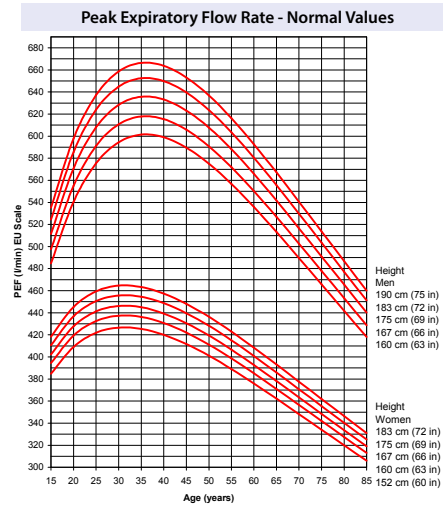
Caution: Patients with severe or life-threatening attacks may not be distressed and may not have all these abnormalities. The presence of any should alert the doctor.

- IMMEDIATE MANAGEMENT**
- Oxygen to maintain SpO₂ 94-98%
 - Salbutamol 5 mg plus ipratropium 0.5 mg via oxygen-driven nebuliser
 - Prednisolone 40-50 mg orally or IV hydrocortisone 100 mg

- Measure arterial blood gases**
Markers of severity:
- 'Normal' or raised PaCO₂ (PaCO₂ >4.6 kPa; 35 mmHg)
 - Severe hypoxia (PaO₂ <8 kPa; 60 mmHg)
 - Low pH (or high H⁺)

- Give/repeat salbutamol 5 mg with ipratropium 0.5 mg by oxygen-driven nebuliser after 15 minutes
- Consider continuous salbutamol nebuliser 5-10 mg/hr
- Consider IV magnesium sulphate 1.2-2 g over 20 minutes
- Correct fluid/electrolytes, especially K⁺ disturbances
- Chest X-ray
- Repeat ABG

- POTENTIAL DISCHARGE**
- In all patients who received nebulised β₂ agonists prior to presentation, consider an extended observation period prior to discharge
 - If PEF <50% on presentation, give prednisolone 40-50 mg/day for 5 days
 - In all patients ensure treatment supply of inhaled steroid and β₂ agonist and check inhaler technique
 - Arrange GP follow up within 2 working days postdischarge
 - Fax or email discharge letter to GP
 - Refer to asthma liaison nurse/chest clinic



Hospital/Ongoing: Adult Asthma

Management of acute severe asthma in adults in hospital

Features of acute severe asthma

- Peak expiratory flow (PEF) 33–50% of best (use % predicted if recent best unknown)
- Can't complete sentences in one breath
- Respiration ≥ 25 breaths/min
- Pulse ≥ 110 beats/min

Life-threatening features

- PEF <33% of best or predicted
- SpO₂ <92%
- Silent chest, cyanosis, or feeble respiratory effort
- Arrhythmia or hypotension
- Exhaustion, altered consciousness

If a patient has any life-threatening feature, measure arterial blood gases. No other investigations are needed for immediate management.

Blood gas markers of a life-threatening attack:

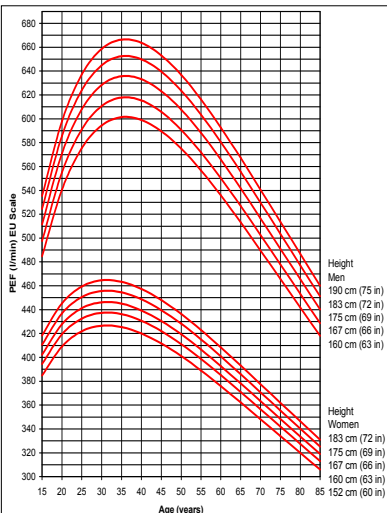
- 'Normal' (4.6–6 kPa, 35–45 mmHg) PaCO₂
- Severe hypoxia: PaO₂ <8 kPa (60 mmHg) irrespective of treatment with oxygen
- A low pH (or high H⁺)

Caution: Patients with severe or life-threatening attacks may not be distressed and may not have all these abnormalities. The presence of any should alert the doctor.

Near-fatal asthma

- Raised PaCO₂
- Requiring mechanical ventilation with raised inflation pressures

Peak Expiratory Flow Rate - Normal Values



Adapted by Clement Clarke for use with EN13826 / EU scale peak flow meters from Nunn AJ Gregg I, Br Med J 1989;298:1068-70

IMMEDIATE TREATMENT

- Oxygen to maintain SpO₂ 94–98%
- Salbutamol 5 mg via an oxygen-driven nebuliser
- Ipratropium bromide 0.5 mg via an oxygen-driven nebuliser
- Prednisolone tablets 40–50 mg or IV hydrocortisone 100 mg
- No sedatives of any kind
- Chest X-ray if pneumothorax or consolidation are suspected or patient requires mechanical ventilation

IF LIFE-THREATENING FEATURES ARE PRESENT:

- Discuss with senior clinician and ICU team
- Consider IV magnesium sulphate 1.2–2 g infusion over 20 minutes (unless already given)
- Give nebulised β_2 agonist more frequently eg salbutamol 5 mg up to every 15-30 minutes or 10 mg per hour via continuous nebulisation (requires special nebuliser)

SUBSEQUENT MANAGEMENT

IF PATIENT IS IMPROVING continue:

- Oxygen to maintain SpO₂ 94–98%
- Prednisolone 40–50mg daily or IV hydrocortisone 100 mg 6 hourly
- Nebulised β_2 agonist and ipratropium 4–6 hourly

IF PATIENT NOT IMPROVING AFTER 15–30 MINUTES:

- Continue oxygen and steroids
- Use continuous nebulisation of salbutamol at 5–10 mg/hour if an appropriate nebuliser is available. Otherwise give nebulised salbutamol 5 mg every 15–30 minutes
- Continue ipratropium 0.5 mg 4–6 hourly until patient is improving

IF PATIENT IS STILL NOT IMPROVING:

- Discuss patient with senior clinician and ICU team
- Consider IV magnesium sulphate 1.2–2 g over 20 minutes (unless already given)
- Senior clinician may consider use of IV β_2 agonist or IV aminophylline or progression to mechanical ventilation

MONITORING

- Repeat measurement of PEF 15–30 minutes after starting treatment
- Oximetry: maintain SpO₂ >94–98%
- Repeat blood gas measurements within 1 hour of starting treatment if:
 - initial PaO₂ <8 kPa (60 mmHg) unless subsequent SpO₂ >92% or
 - PaCO₂ normal or raised or
 - patient deteriorates
- Chart PEF before and after giving β_2 agonists and at least 4 times daily throughout hospital stay

Transfer to ICU accompanied by a doctor prepared to intubate if:

- Deteriorating PEF, worsening or persisting hypoxia, or hypercapnia
- Exhaustion, altered consciousness
- Poor respiratory effort or respiratory arrest

DISCHARGE

When discharged from hospital, patients should have:

- Been on discharge medication for 12–24 hours and have had inhaler technique checked and recorded
- PEF >75% of best or predicted and PEF diurnal variability <25% unless discharge is agreed with respiratory physician
- Treatment with **oral and inhaled steroids** in addition to bronchodilators
- Own PEF meter and **written asthma action plan**
- GP follow up arranged within **2 working days**
- Follow-up appointment in respiratory clinic **within 4 weeks**

Patients with severe asthma (indicated by need for admission) and adverse behavioural or psychosocial features are at risk of further severe or fatal attacks.

- Determine reason(s) for exacerbation and admission
- Send details of admission, discharge and potential best PEF to GP

Asthma/Wheeze Discharge Sheet This is your discharge advice for the next week

Patients Name..... Admission PEFR.....
 Discharge PEFR.....

Please make an appointment with YOUR GP/Practice Nurse/Asthma Nurse within 48hrs

You have been prescribedmg Prednisolone fordays, please take in the morning
 If you use Brown/Orange/Purple inhalers continue to use twice a day even when well

How much of you Salbutamol (Blue inhaler) to use

Day	No. Puffs Blue Inhaler	Frequency
1	6 Puffs	Every 4 hours
2	4 Puffs	Every 4 hours
3	2 Puffs	Every 4 hours
4+	2-6 Puffs	As Needed

If symptoms worsen go back to previous days regime

You can use extra Blue inhaler if needed – Use 4 puffs and then 1 puff per minute until symptoms settle [If you need more than 10 puffs return to the Emergency Department, continue using Blue inhaler until you settle/help arrives].

Inhaler technique checked by Name.....
 Sign.....

When to return?

Emergency Department/999

Blue Inhaler not helping, Breathing is hard and fast, Can't talk or walk properly, Getting Tired

GP Today

You are using more Blue inhaler than suggested and/or you are concerned

GP/Practice Nurse/Children's Community Nursing Team

Your using the management plan but have some concerns

**Remember ANYONE SMOKING in the household will worsen
 Your Asthma!!**