

# Summary of treatment of asthma in adults

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## Resources



[Asthma Management Handbook 2006](#) (National Asthma Council Australia) [1.1 Mb]

The management of asthma is clearly and in excruciating detail described by the [National Asthma Council of Australia](#). Last year, the NAC published the 2006 update to the [Asthma Management Handbook](#) (1) which for all intents and purposes, should be considered the "gospel" of asthma management. Nevertheless, I have a number of criticisms against the publication. According to its own introduction, it is designed as an evidence-based guideline of asthma management aimed at general practitioners. However, I question whether more than a handful of GPs would actually read the entire **157 pages** of handbook! The lack of summary pages on management is unhelpful.

This article was written to address some of the deficiencies by distilling the management of asthma in adults into digestible chunks.

## Treatment of acute asthma in adults

### *Initial assessment*

Findings	Mild	Moderate	Severe
Physical exhaustion	No	No	Yes
Talks in	Sentences	Phrases	Words
Pulse rate	< 100/min	100-120/min	> 120/min
Pulsus paradoxus	No	Maybe	Palpable
Central cyanosis	Absent	Maybe	Likely
Wheeze intensity	Variable	Moderate to loud	Often quiet
PEF	> 75% predicted/best	50-75% predicted/best	< 50% predicted/best or < 100 L/min
FEV1	> 75% predicted	50-75% predicted	< 50% predicted or < 1 L
Oximetry			< 90%

ABG	No	If poor initial response	Yes
Other Ix	No	Maybe	Check hypokalaemia, CXR

*Treatment of an acute episode in a nutshell*

**salbutamol MDI (measured dose inhaler) 8-12 puffs (100 mcg/dose) via spacer**

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**salbutamol 5 mg via nebuliser**

Mild:

- Oxygen - SaO<sub>2</sub> > 90%
- salbutamol via spacer or neb
- oral prednisone (0.5-1 mg/kg) up to 60 mg
- regular obs

Moderate:

- Oxygen - SaO<sub>2</sub> > 90%
- salbutamol via spacer or neb every 1-4 hours
- consider ipratropium bromide neb (500 mcg)
- oral prednisone (0.5-1 mg/kg) or hydrocortisone 250 mg IV
- continuous obs

Severe:

- Oxygen - SaO<sub>2</sub> > 90%
- salbutamol via spacer or neb every 15-30 min
  - If no response, salbutamol IV bolus (250 mcg) + infusion (5-10 mcg/kg/hr)
- ipratropium bromide neb 500 mcg q2h (with salbutamol)
- oral prednisone (0.5-1 mg/kg)
- IV hydrocortisone 250 mg q6h x 24h then review
- CXR if focal signs or not responding
- continuous obs
- treat hypokalaemia if present

**Treatment of ongoing stable asthma in adults**

*Diagnosis*

- Variable symptoms (especially cough, chest tightness, wheeze and shortness of breath) *and*;
- spirometry shows significant reversible airway limitation.

## *Spirometry*

- Is the lung function test of choice for diagnosing and assessing asthma.
- Bronchodilator dose for spirometry is salbutamol MDI 4 puffs via a spacer.
- Airflow limitation is "reversible" if:
  - Post-bronchodilator increase of FEV1 greater than or equal to 12% of baseline (where baseline FEV1 > 1.7 L), *or*;
  - Post-bronchodilator increase of FEV1 greater than or equal to 200 mL (where baseline FEV1 < 1.7 L).

## *Classification of asthma in adults*

Intermittent asthma (all of the following apply in the untreated person):

- Daytime symptoms < 1 per week
- Night time symptoms < 2 per month
- Exacerbations are infrequent and brief
- FEV1 greater than or equal to 80% predicted and varies by < 20%

Mild persistent asthma (where one or more apply and more severe signs are not present):

- Daytime symptoms > 1 per week, but not daily
- Night time symptoms > 2 per month, but not weekly
- Exacerbations occur occasionally and may affect activity or sleep
- FEV greater than or equal to 80% predicted and varies 20-30%

Moderate persistent asthma (where one or more apply and no severe signs):

- Daytime symptoms daily but does not usually restrict activities.
- Night time symptoms at least weekly.
- Exacerbations occur occasionally and may affect activity or sleep
- FEV 60-80% predicted and varies > 30%

Severe persistent asthma (where one or more the following apply):

- Daytime symptoms daily and restricts physical activities
- Night time symptoms every night
- Exacerbations are frequent
- FEV < 60% predicted and varies > 30%

## *Treatment in a nutshell*

**intermittent asthma = SABA**

**mild persistent = SABA +/- low dose ICS**

**moderate persistent = SABA + ICS + LABA**

## severe persistent = SABA + ICS (high dose) + LABA

- SABA = short-acting beta agonist (e.g., salbutamol MDI)
- ICS = inhaled corticosteroids (e.g., fluticasone propionate)
- LABA = long-acting beta agonist (e.g., salmeterol xinafoate)

Treatment with a preventer medication is indicated for patients with asthma symptoms > 3 times a week or who use a SABA > 3 times a week.

In patients whose asthma control is not achieved despite low-dose ICS, a LABA should be the first choice for add-on therapy.

### Hints and tips

Unfortunately, inhaled medications for asthma often comes in incompatible inhalation devices that you will have to get used to. This is especially true with the inhaled corticosteroids.

For this reason, I recommend initially prescribing the use of inhalers that come in the form of **metered dose inhalers** and encouraging the use of spacers. Much of the "problems" that automated delivery devices are designed to address simply don't occur if the patient uses a spacer.

### *Warning about long-acting beta-agonists and controversies*

There is good quality evidence that when used alone, LABAs increase the risk of severe asthma exacerbations, hospitalisations and asthma death (2). This is with both the LABAs available in Australia, salmeterol (Serevent) and eformoterol (Foradile, Oxis). There is evidence that fenoterol (a powerful LABA not available in Australia) was the "major cause for the secondary epidemic of asthma deaths in New Zealand" before it was effectively withdrawn from the market (3).

More worryingly, it does not appear that inhaled corticosteroids completely protect against this risk and the conclusion of the meta-analysis by Salpeter, et al in 2006 suggested that LABAs should be reassessed on "whether these agents should be withdrawn from the market".

This is in contradiction to the Asthma Management Handbook 2006 which recommends adding a LABA to a low-dose ICS in preference to a dose increase. There is clear evidence that this strategy improves symptomatic control but the question of whether this results in an increase in severe episodes and death remains.

As such, **LABAs should only be used in conjunction with an inhaled corticosteroid and never alone**. Both available agents in Australia come in combination with an inhaled corticosteroid; fluticasone/salmeterol (Seretide) and budesonide/eformoterol (Symbicort). My personal opinion is that LABAs should be never prescribed out of combination with an ICS.

There is no evidence for the use of LABAs in children.

There is some evidence that budesonide/eformoterol (Symbicort) can be used as a reliever (given the relatively quick onset of action of eformoterol) and the Asthma Management Handbook 2006 suggests that a separate reliever may not be necessary. Certainly, that is the line of the AstraZeneca representatives (who try their hardest to differentiate eformoterol from their rival salmeterol). However, given that the Salpeter meta-analysis revealed that eformoterol had a negative mortality profile compared to placebo (just like, and in fact, *worse* than salmeterol) and that the device (Turbihaler) cannot be attached to a spacer (in the event of a severe attack), I hold

Symbicort (possibly unfairly) in suspicion.

## References

(1) National Asthma Council Australia. *Asthma Management Handbook 2006. Melbourne, 2006.*  
[[Link](#) :: [PDF](#) 1.1 Mb]

(2) Salpeter S., Buckley N., Ormiston T., Salpeter E. Meta-analysis: effect of long-acting beta-agonists on severe asthma exacerbations and asthma-related deaths. *Ann Intern Med.* 2006 Jun 20; 144(12):904-12. [[Link](#) :: PDF 342 Kb]

(3) Beasley R. Pearce N. Crane J. Burgess C. Withdrawal of fenoterol and the end of the New Zealand asthma mortality epidemic. *International Archives of Allergy & Immunology.* 107(1-3):325-7, 1995 May-Jun.

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