Asthma & Respiratory Foundation NZ

Adult Asthma Guidelines:
A Quick Reference Guide

Richard Beasley, Bob Hancox, Matire Harwood,
Kyle Perrin, Betty Poot, Janine Pilcher, Jim Reid,
Api Talemaitoga, Darmiga Thayabaran
This summary provides busy health professionals with key guidance for assessing and treating adult asthma.

Initial treatment: when to add ICS

- If symptoms or beta agonist use ≥2 x/week
- If severe exacerbation last year
Initial treatment: what ICS dose

The recommended standard daily dose of ICS in adolescent and adult asthma

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beclomethasone dipropionate</td>
<td>400-500 µg/day</td>
</tr>
<tr>
<td>Extrafine</td>
<td>200 µg/day</td>
</tr>
<tr>
<td>Budesonide</td>
<td>400 µg/day</td>
</tr>
<tr>
<td>Fluticasone propionate</td>
<td>200-250 µg/day</td>
</tr>
</tbody>
</table>
ICS starting dose

• It is recommended that ICS are started at standard daily doses.

• There is no greater benefit starting ICS at 2 to 4 times higher doses.
Holt et al. BMJ 2001; Masoli et al. ERJ 2004
ICS/LABA therapy: key points

- LABAs should not be prescribed in a separate inhaler from ICS.

- ICS/LABA may be prescribed as:
  i) Fixed maintenance ICS/LABA and SABA reliever
  ii) ICS/LABA maintenance and reliever therapy (SMART)
Association of Inhaled Corticosteroids and Long-Acting β-Agonists as Controller and Quick Relief Therapy With Exacerbations and Symptom Control in Persistent Asthma
A Systematic Review and Meta-analysis

Diana M. Sobieraj, PharmD; Erin R. Weeda, PharmD; Elaine Nguyen, PharmD, MPH; Craig I. Coleman, PharmD; C. Michael White, PharmD; Stephen C. Lazarus, MD; Kathryn V. Blake, PharmD; Jason E. Lang, MD, MPH; William L. Baker, PharmD
Figure 2. Association of SMART With Exacerbations Requiring Systemic Corticosteroids, Hospitalization, or ED Visits Among Patients Aged 12 Years or Older vs the Same Dose of Inhaled Corticosteroids and LABA Controller Therapy

<table>
<thead>
<tr>
<th>Source</th>
<th>SMART Group</th>
<th>Control Group</th>
<th>Absolute Risk Difference (95% CI), %</th>
<th>Risk Ratio (95% CI)</th>
<th>Weight, %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total No. of Participants</td>
<td>No. With Event</td>
<td>Total No. of Participants</td>
<td>No. With Event</td>
<td></td>
</tr>
<tr>
<td>Vogelmeier et al,23 2012</td>
<td>1067</td>
<td>132</td>
<td>1076</td>
<td>167</td>
<td>0.80 (0.64 to 0.99)</td>
</tr>
<tr>
<td>Rabe et al,25 2006</td>
<td>1107</td>
<td>143</td>
<td>1138</td>
<td>245</td>
<td>0.60 (0.50 to 0.72)</td>
</tr>
<tr>
<td>Atienza et al,24 2013</td>
<td>1049</td>
<td>170</td>
<td>1042</td>
<td>229</td>
<td>0.74 (0.62 to 0.88)</td>
</tr>
<tr>
<td>Papi et al,26 2013</td>
<td>852</td>
<td>99</td>
<td>849</td>
<td>152</td>
<td>0.65 (0.51 to 0.82)</td>
</tr>
<tr>
<td>Patel et al,27 2013</td>
<td>151</td>
<td>28</td>
<td>152</td>
<td>50</td>
<td>0.56 (0.38 to 0.84)</td>
</tr>
<tr>
<td>Overall (random-effects model)</td>
<td>4226</td>
<td>572</td>
<td>4257</td>
<td>843</td>
<td>0.68 (0.58 to 0.80)</td>
</tr>
</tbody>
</table>

Heterogeneity: $I^2 = 29\%$, $P = .23$
Test for overall effect: $t_4 = -6.44$, $P < .001$

[Sobieraj et al. JAMA 2018]
SMART Regimen

- The SMART regimen is more effective at reducing severe exacerbations than maintenance ICS/LABA with SABA reliever therapy.
- The SMART regimen is the preferred ICS/LABA regimen for treating patients at risk of severe exacerbations.
Effectiveness of fluticasone furoate plus vilanterol on asthma control in clinical practice: an open-label, parallel group, randomised controlled trial

Ashley Woodcock*, Jørgen Vestbo*, Nawar Diar Bakerly, John New, J Martin Gibson, Sheila McCorkindale, Rupert Jones, Susan Collier, James Lay-Flurrie, Lucy Frith, Loretta Jacques, Joanne L Fletcher, Catherine Harvey, Henrik Svedsater, David Leather, on behalf of the Salford Lung Study Investigators†
Cumulative proportion with event (%) vs. Time since start of study medication (weeks)

Number at risk:
- Usual care: 2119
- Fluticasone furoate and vilanterol: 2114

HR 0.96 (95% CI 0.86–1.07); p=0.5041

[Woodcock et al. Lancet 2017]
STEP UP to achieve control and reduce risk of exacerbation

STEP DOWN after a period of prolonged control to find and maintain lowest required step

STEP 1
SABA reliever therapy

STEP 2
Maintenance standard dose ICS and SABA reliever therapy

STEP 3
Maintenance standard dose ICS/LABA and
- SABA reliever therapy
- ICS/LABA Reliever Therapy (SMART regimen)

STEP 4
Maintenance high dose (not standard) ICS/LABA and
- SABA reliever therapy
- ICS/LABA Reliever Therapy (SMART regimen)

STEP 5
Maintenance high dose (not standard) ICS/LABA and
- SABA reliever therapy
- ICS/LABA Reliever Therapy (SMART regimen)

Consider add on treatment and seek specialist advice
Self-management

• Action plans should be offered to all people with asthma.

• Asthma action plans may be based on symptoms ± peak flow and comprise 3 or 4 stages.
YOUR ASTHMA ACTION PLAN

Know your asthma symptoms

Your asthma is under control when
- you don’t have asthma symptoms most days (wheeze, tight chest, a cough or feeling breathless)
- you have no cough or wheeze at night
- you can do all your usual activities and exercise freely
- most days you don’t need a reliever

Feeling good

Your peak flow reading is above

Knowing when and how to take your medicine

Preventer
- you take it every day
- you take one puff in the morning

Reliever
- you take it when you need it to relieve your asthma symptoms

Remember:
We strongly suggest that you use a spacer, if one can be used with your preventer inhaler.

Carry your reliever at all times

Caution your asthma is getting severe when
- your symptoms are getting severe (wheeze, tight chest, a cough or feeling breathless)
- your reliever is only helping for 2-3 hours, or you are using more than 12 puffs a day
- you feel you need to see your doctor

Severe

Your peak flow reading is below

Let’s take action...
- continue your regular medicine
- start prednisone if you have it:

Prednisone
- mg
- for
- days
- and then
- mg
- for
- days

Important: You need to see your doctor today

Other instructions:

Emergency

- your symptoms are getting more severe quickly
- you are finding it hard to speak or breathe
- your reliever is not helping much
- you are using your reliever every 1-2 hours

Your peak flow reading is below

Let’s keep calm...
- Dial 111 for ambulance
- Keep using your reliever as often as needed – through a spacer, if one can be used with your reliever inhaler
- Even if you seem to get better seek medical help right away
- If you haven’t started taking your prednisone, start now

Best peak flow:

Plan prepared by:

Next review date:

Signature:
YOUR ASTHMA ACTION PLAN

Know your asthma symptoms

- Your asthma is under control when:
  - you don't have asthma symptoms most days (wheeze, tight chest, a cough or feeling breathless)
  - you have no cough or wheeze at night
  - you can do all your usual activities and exercise freely
  - most days you don't need a reliever
  - Your peak flow reading is above

- Caution - your asthma is getting worse when:
  - you have symptoms most days (wheeze, tight chest, a cough or feeling breathless)
  - you are waking at night with symptoms
  - you are getting a cold
  - you feel short of breath when you exercise
  - Your peak flow reading is below

- Caution - your asthma is getting severe when:
  - your symptoms are getting severe (wheeze, tight chest, a cough or feeling breathless)
  - your reliever is only helping for 2-3 hours, or you are using more than 12 puffs a day
  - you feel you need to see your doctor
  - Your peak flow reading is below

Know when and how to take your medicine

- Preventer [name]
  - puffs
  - every morning

- Reliever [name]
  - puffs
  - when you need it to relieve your asthma symptoms

Remember:
- We strongly suggest that you use a spacer, if one can be used with your preventer inhaler
- Carry your reliever at all times

Let's get prepared…
- Step up your preventer medicine:
  - Take ______ puffs four times each day
- Use your reliever as often as needed – through a spacer, if one can be used with your reliever inhaler

Let's take action…
- Continue your medicine for "getting worse"
- Start prednisone if you have it:
  - Prednisone mg for days
  - and then mg for days
- Important: You need to see your doctor today

Let's keep calm…
- Dial 111 for ambulance
- Keep using your reliever as often as needed – through a spacer, if one can be used with your reliever inhaler
- Even if you seem to get better seek medical help right away
- If you haven't started taking your prednisone, start now

Best peak flow: ____________________________
Plan prepared by: ____________________________
Next review date: ____________________________
Signature: ____________________________
YOUR SMART* ASTHMA ACTION PLAN
*Single Maintenance and Reliever Therapy

Know your asthma symptoms

Feeling good
Your asthma is under control when
- you don’t have asthma symptoms most days (wheeze, tight chest, a cough or feeling breathless)
- you have no cough or wheeze at night
- you can do all your usual activities and exercise freely
- Most days you don’t need your Symbicort inhaler

Caution - your asthma is getting severe when
- your symptoms are getting severe (wheeze, tight chest, a cough or feeling breathless)
- your Symbicort is only helping for 2-3 hours, or you are using more than 8 doses a day in total (regular + reliever use)
- you feel you need to see your doctor

Important: You need to check your peak flow reading today

Your peak flow reading is above

Know when and how to take your medicine

Let's take action...
- Continue your regular Symbicort PLUS 1 dose of your Symbicort when needed to relieve symptoms
- Start prednisone if you have it:
  - Prednisone
    - mg
    - for
    - days
  - and then
    - mg
    - for
    - days

Let's keep calm...
- Dial 111 for ambulance
- Keep using your Symbicort as often as needed
- Even if you seem to get better seek medical help right away
- If you haven't started taking your prednisone, start now

Important: You need to check your peak flow reading today

Your peak flow reading is below

Remember:
Your Symbicort is both a preventer and reliever - You do not need an extra inhaler as a reliever
Carry your Symbicort at all times

Other instructions:
Treatable traits: toward precision medicine of chronic airway diseases

Alvar Agustí¹, Elisabeth Bel², Mike Thomas³, Claus Vogelmeier⁴, Guy Brusselle⁵,⁶, Stephen Holgate⁷, Marc Humbert⁸, Paul Jones⁹, Peter G. Gibson¹⁰, Jørgen Vestbo¹¹, Richard Beasley¹² and Ian D. Pavord¹³
Treatable Traits

Overlapping disorders:
- COPD
- Bronchiectasis
- Allergic bronchopulmonary aspergillosis
- Dysfunctional breathing, e.g. vocal cord dysfunction

Comorbidities:
- Obesity
- Gastro-oesophageal reflux disease
- Rhinitis
- Sinusitis
- Depression/anxiety

[Agusti et al. ERJ 2016]
Treatable Traits

Environmental:
• Smoking
• Occupational exposures
• Provoking factors e.g. aspirin, other NSAIDs

Behavioural:
• Adherence
• Inhaler technique

[Agusti et al. ERJ 2016]
**STEP UP** to achieve control and reduce risk of exacerbations

**STEP DOWN** after a period of prolonged control to find and maintain lowest required step

At every step consider treatable traits, including overlapping disorders, comorbidities, environmental and behavioural factors

<table>
<thead>
<tr>
<th>STEP 1</th>
<th>SABA reliever therapy</th>
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</table>
| **STEP 2** | Maintenance standard dose ICS/LABA and SABA reliever therapy  
or  
Standard dose Single ICS/LABA Maintenance and Reliever Therapy (SMART regimen) |
| **STEP 3** | Maintenance standard dose ICS/LABA and SABA reliever therapy  
or  
High dose (not standard) Single ICS/LABA Maintenance and Reliever Therapy (SMART regimen) |
| **STEP 4** | Maintenance high dose (not standard) ICS/LABA and SABA reliever therapy  
or  
High dose (not standard) Single ICS/LABA Maintenance and Reliever Therapy (SMART regimen)  
and  
Consider add on treatment and seek specialist advice |
| **STEP 5** | Maintenance high dose (not standard) ICS/LABA and SABA reliever therapy  
or  
High dose (not standard) Single ICS/LABA Maintenance and Reliever Therapy (SMART regimen) |
APPENDIX: FOUR STEPS TO WRITING AN ADULT ASTHMA SELF-MANAGEMENT PLAN

1. Assess asthma control
   - Complete the Asthma Control Test (ACT) score
     - 20-25: well controlled
     - 16-19: partly controlled
     - 5-15: poorly controlled
   - Review lung function tests
     - Peak flow monitoring and/or Spirometry
   - Review severe asthma attacks in last 12 months (requiring urgent medical review, oral steroids or bronchodilator nebuliser use).

2. Consider other relevant clinical issues
   - Ask about compliance with maintenance treatment
   - Check inhaler technique
   - Enquire about clinical features associated with an increased risk
   - Consider treatable traits
   - Decide whether peak flow monitoring is indicated

3. Decide if increase or decrease in maintenance therapy required
   - Is a step up in the level of treatment required if asthma is not adequately controlled, poor lung function or recent severe exacerbation?
   - Is a step down in the level of treatment possible if there has been a sustained period of good control?
   - Is a change to the SMART regimen required in patients prescribed ICS/LABA treatment who have had a recent severe exacerbation?

4. Complete the self-management plan
   - Enter ID and medications
   - For those with peak flow instructions, enter personal best recent peak flow and peak flow at each level in the plan. The recommended cut points of <70% for getting worse and <50% for emergency are a reference guide only and can be adjusted according to clinical judgement depending on the patient.
   - Enter the prednisone regimen. The standard regimen in the situation of severe asthma is 40mg daily for 5 days. An alternative regimen is 40mg daily until there is definite improvement and then 20mg daily for the same number of days.
   - Enter additional instructions in the box provided. This may include avoidance of provoking factors such as aspirin, or the option of increasing the dose of inhaled corticosteroids through increasing the frequency of their use to four times daily, when they recognise worsening asthma symptoms.
Asthma in Maori

- Greater burden of disease
- Worse health outcomes
- Barriers to good management
- Multiple contributing factors
- Multifaceted interventions required