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

Its source document “Asthma and Respiratory Foundation NZ Adult Asthma Guidelines” is available for download at nzasthmaguidelines.co.nz or asthmaandrespiratory.org.nz
Asthma **MORE** likely

- Two or more of these symptoms:
  - Wheeze (most sensitive and specific symptom of asthma)
  - Breathlessness
  - Chest tightness
  - Cough
- Symptom pattern:
  - Typically worse at night or in the early morning
  - Provoked by exercise, cold air, allergen exposure, irritants, viral infections, beta blockers, aspirin or other NSAIDs.
  - Recurrent or seasonal
  - Began in childhood
- History of atopic disorder or family history of asthma
- Widespread wheeze heard on chest auscultation
- Symptoms rapidly relieved by inhaled short-acting beta-2 agonist (SABA)
- Airflow obstruction on spirometry (FEV₁/FVC < 0.7)
- Increase in FEV₁ following bronchodilator, >10%; the greater the increase the greater the probability
- Variability in PEF over time (highest-lowest PEF/mean), >15%; the greater the variability the greater the probability

Asthma **LESS** likely

- Chronic productive cough in absence of wheeze or breathlessness
- No wheeze when symptomatic
- Normal spirometry or PEF when symptomatic
- Symptoms beginning later in life, particularly in people who smoke
- Increase in FEV₁ following bronchodilator, <10%; the lesser the increase the lower the probability
- Variability in PEF over time, <15%; the lesser the variability the lower the probability
- No response to trial of asthma treatment
PRESENTATION WITH SUSPECTED ASTHMA

CLINICAL ASSESSMENT

- History and examination
- Measurement of PEF or FEV\(_1\), including bronchodilator responsiveness

ASTHMA LIKELY

YES
- Poor response
  - START ASTHMA TREATMENT AND REVIEW RESPONSE
    - Good response
      - Continue to monitor and treat
    - NO
      - Consider further investigations and/or specialist referral

NO
- Consider alternative diagnoses
  - Alternative diagnoses confirmed
  - YES
    - Treat accordingly
ASSESSING ASTHMA CONTROL AND FUTURE RISK

- Asthma control test
- Assessment of risk of severe exacerbations / mortality
1. In the past 4 weeks, how much of the time did your asthma keep you from getting as much done at work, school or at home?

   1. All of the time
   2. Most of the time
   3. Some of the time
   4. A little of the time
   5. None of the time

2. During the past 4 weeks, how often have you had shortness of breath?

   1. More than once a day
   2. Once a day
   3. 3 to 6 times a week
   4. Once or twice a day
   5. Not at all

3. During the past 4 weeks, how often did your asthma symptoms (wheezing, coughing, shortness of breath, chest tightness or pain) wake you up at night, or earlier than usual in the morning?

   1. 4 or more nights a week
   2. 2 or 3 nights a week
   3. Once a week
   4. Once or twice
   5. Not at all

4. During the past 4 weeks, how often have you used your rescue inhaler or nebulizer medication (such as albuterol)?

   1. 3 or more times per day
   2. 1 or 2 times per day
   3. 2 or 3 times per week
   4. Once a week or less
   5. Not at all

5. How would you rate your asthma control during the past 4 weeks?

   1. Not controlled at all
   2. Poorly controlled
   3. Somewhat controlled
   4. Well controlled
   5. Not at all

**PATIENT TOTAL SCORE**
ACT “cut-off’ levels

- Poorly or not controlled ≤15
- Somewhat controlled 16-19
- Well or completely controlled ≥20
IDENTIFICATION OF PATIENTS AT HIGH RISK OF EXACERBATION

• Monitor health care utilisation
  – hospital admissions
  – ED and emergency doctor visits

• Medication requirements
  – long term or repeated courses of oral corticosteroids
  – frequency of beta agonist prescriptions
  – more prescriptions for beta agonists than ICS
Adapted from GINA


Symptoms
Exacerbation
Side-effects
Patient satisfaction
Lung function

Diagnosis
Symptom control & risk factors (including lung function)
Inhaler technique & adherence
Patient preference
Health literacy

Asthma medications
Non-pharmacological strategies
Treat modifiable risk factors
INITIAL TREATMENT: WHEN TO ADD ICS

- If symptoms or beta agonist use $\geq 2$ x/week
- If severe exacerbation last year
**INITIAL TREATMENT: WHEN TO ADD ICS**

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

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Daily Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beclomethasone dipropionate</td>
<td>400-500 µg/day</td>
</tr>
<tr>
<td>Beclomethasone dipropionate 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.
Dose-response relation of inhaled fluticasone propionate in adolescents and adults with asthma: meta-analysis, Holt et al; BMJ 2001: VOLUME 323


Peak expiratory flow (morning)
β-agonist use
Night wakenings
Major exacerabtions

Fluticasone dose (µg/day) n=2324

Budesonide (µg/day) n=1435
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)
WHAT IS SMART?

• SMART comprises budesonide and formoterol in a single inhaler for use as both maintenance and reliever therapy

• Can be used with Symbicort Turbuhaler 100/6 or 200/6

• No separate reliever is needed
NZ Guideline recommendations of SMART

• The SMART regimen is more effective at reducing severe exacerbations than maintenance ICS/LABA with SABA reliever therapy¹

• The SMART regimen is the preferred ICS/LABA regimen for treating patients at risk of severe exacerbations¹

¹ NZMJ 18 November 2016, Vol 129 No 1445
STEP UP to achieve control and reduce risk of exacerbation

STEP UP 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 high dose ICS/LABA
and
SABA reliever therapy
or
ICS/LABA Reliever Therapy (SMART regimen)

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

STEP 5
Maintenance high dose (not standard) ICS/LABA
and
SABA reliever therapy
or
ICS/LABA Reliever Therapy (SMART regimen)
and
Consider add on treatment and seek specialist advice
STEPWISE APPROACH TO PHARMACOLOGICAL TREATMENT OF ADULT ASTHMA

In the stepwise approach to asthma management, patients step up and down as required to achieve and maintain control of their asthma and reduce the risk of exacerbations.

**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

---

**STEP 1**
SABA reliever therapy

**STEP 2**
Maintenance standard dose ICS 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)

**STEP 5**
Consider add on treatment and seek specialist advice

---

### RECOMMENDED ICS/LABA DOSES IN ADULT ASTHMA

#### STEP 3

- **FP/Salm 50/25 2 inh BD**
- **FP/Salm 100/50 1 inh BD**
- **Bud/Form 100/6 2 inh BD**
- **Bud/Form 200/6 1 inh BD**
  - Or
- **SMART regimen**
  - **Bud/Form 100/6 2 inh BD**
  - **Bud/Form 200/6 1 inh BD**

  + **SABA for relief**

#### STEP 4 + 5

- **FP/Salm 125/25 2 inh BD**
- **FP/Salm 250/50 1 inh BD**
- **Bud/Form 200/6 2 inh BD**
- **FF/Vilanterol 100/25 1 inh OD**
  - Or
- **FF/Vilanterol 200/25 currently not funded**
  - Or
- **SMART regimen**
  - **Bud/Form 200/6 2 inh BD**
  - **[Bud/Form 400/12 is not recommended]**

  + **SABA for relief**

---

**FP/Salm:** Fluticasone Propionate/Salmeterol; **Bud/Form:** Budesonide/Formoterol; **FF/Vilanterol:** Fluticasone Furoate/Vilanterol; **OD:** once daily; **BD:** twice daily; **SMART:** Single ICS/LABA Maintenance and Reliever Therapy
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

<table>
<thead>
<tr>
<th>Feeling good</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Your asthma is under control when</strong></td>
</tr>
<tr>
<td>• you don’t have asthma symptoms most days (wheeze, tight chest, a cough or feeling breathless)</td>
</tr>
<tr>
<td>• you have no cough or wheeze at night</td>
</tr>
<tr>
<td>• you can do all your usual activities and exercise freely</td>
</tr>
<tr>
<td>• most days you don’t need a reliever</td>
</tr>
<tr>
<td><strong>Your peak flow reading is above</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Getting worse</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Caution—your asthma is getting worse when</strong></td>
</tr>
<tr>
<td>• you have symptoms most days (wheeze, tight chest, a cough or feeling breathless)</td>
</tr>
<tr>
<td>• you are waking at night with symptoms</td>
</tr>
<tr>
<td>• you are getting a cold</td>
</tr>
<tr>
<td>• you feel short of breath when you exercise</td>
</tr>
<tr>
<td><strong>Your peak flow reading is below</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Caution—your asthma is getting severe when</strong></td>
</tr>
<tr>
<td>• your symptoms are getting severe (wheeze, tight chest, a cough or feeling breathless)</td>
</tr>
<tr>
<td>• your reliever is only helping for 2-3 hours, or you are using more than 12 puffs a day</td>
</tr>
<tr>
<td>• you feel you need to see your doctor</td>
</tr>
<tr>
<td><strong>Your peak flow reading is below</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Emergency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Emergency</strong></td>
</tr>
<tr>
<td>• your symptoms are getting more severe quickly</td>
</tr>
<tr>
<td>• you are finding it hard to speak or breathe</td>
</tr>
<tr>
<td>• your reliever is not helping much</td>
</tr>
<tr>
<td>• you are using your reliever every 1-2 hours</td>
</tr>
<tr>
<td><strong>Your peak flow reading is below</strong></td>
</tr>
</tbody>
</table>

### Know when and how to take your medicine

<table>
<thead>
<tr>
<th>Preventer</th>
<th>puffs</th>
<th>every morning</th>
</tr>
</thead>
<tbody>
<tr>
<td>[name]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reliever</th>
<th>puffs</th>
<th>when you need it to relieve your asthma symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>[name]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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”
  
  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:**
Treatable traits: toward precision medicine of chronic airway diseases

Alvar Agustí¹, Elisabeth Bel², Mike Thomas³, Claus Vogelmeier⁴, Guy Brusselle⁵, 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
TREATABLE TRAITS

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

Behavioural:
• Adherence
• Inhaler technique
CASE

45 year old woman with atopic asthma, ‘Step 3’ ICS/LABA treatment and repeat courses of oral steroids for exacerbations, anxiety/depression.

• Step up to moderate or high dose ICS/LABA treatment
SYSTEMATIC REVIEW:

- Eosinophilic asthma\(^1\)
- Psychogenic vocal cord dysfunction\(^2\)
- Allergic bronchopulmonary aspergillosis\(^2\)
- Chronic rhinosinusitis\(^2\)
- Occupational asthma\(^2\)
- Adherence, inhaler technique\(^2\)

1. Agusti et al; Eur Respir J 2016; 47: 410–419
2. NZMJ 18 November 2016, Vol 129 No 1445

Patient Scenario not a real case – prepared by Richard Beasley
At every step consider treatable traits, including overlapping disorders, comorbidities, environmental and behavioural factors.

**STEP 1**
SABA reliever therapy

**STEP 2**
Maintenance standard dose ICS and SABA reliever therapy
  or
Standard dose Single ICS/LABA Maintenance and Reliever Therapy (SMART regimen)

**STEP 3**
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)

**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)

At every step consider treatable traits, including overlapping disorders, comorbidities, environmental and behavioural factors.
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.
THE FOUR STEP ADULT ASTHMA CONSULTATION

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

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 asthma action plan**
   - Decide which plan to use:
     - stage 1: maintenance ICS + SABA reliever
     - stage 2: maintenance ICS + SABA reliever
     - stage 3: maintenance ICS + SABA reliever
       [This includes the instruction to increase dose and frequency of ICS in worsening asthma]
     - stage 4: ICS/LABA + SABA reliever
     - stage 5: ICS/LABA Maintenance and Reliever Therapy (SMART)
   - 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 <80% for getting worse, <60 to 70% for severe asthma and <50% for an 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 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.

https://www.asthmafoundation.org.nz
ASTHMA IN MAORI

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

• The risks to the baby of poor asthma control in pregnancy outweigh theoretical risks with asthma medications.
• SABAs, ICS and LABAs should be used as normal.
• Oral steroids should be used as normal during severe attacks which should be treated in hospital.
MANAGEMENT OF ACUTE SEVERE ASTHMA

Acute asthma management is based on:

• objective measurement of severity
• administering treatment appropriate for the degree of severity
• repeatedly reassessing the response to treatment
• assessment of the need for referral to hospital and/or hospital admission
LEVELS OF SEVERITY OF ACUTE ASTHMA EXACERBATION

Moderate asthma exacerbation:
- Increasing symptoms
- FEV₁ or PEF >50% best or predicted
- No features of acute severe asthma

Severe asthma – any one of:
- FEV₁ or PEF 30-50% best or predicted
- Respiratory rate ≥25/min
- Heart rate ≥110/min
- Inability to complete sentences in one breath
LEVELS OF SEVERITY OF ACUTE ASTHMA EXACERBATION

Life-threatening asthma: – any one of following in a patient with severe asthma:

- $\text{FEV}_1$ or PEF <30% best or predicted
- $\text{SpO}_2 <92\%$ or $\text{PaO}_2 <50$ mmHg
- $\text{PaCO}_2 \geq 45$ mmHg
- Inability to talk*
- Silent chest*
- Cyanosis*
- Feeble respiratory effort, exhaustion*
- Hypotension or bradycardia*
CRITERIA FOR REFERRAL TO HOSPITAL AND/OR HOSPITAL ADMISSION

• Patients with any feature of life-threatening asthma
• Patients with any feature of severe attack persisting after initial treatment
• Patients in whom other considerations suggest admission may be appropriate:
  - Living alone/socially isolated
  - Psychosocial problems
  - Physical disability or learning difficulties
  - Previous near fatal or brittle asthma
  - Exacerbation despite adequate dose oral steroids
  - Presentation at night
  - Pregnancy
PRACTICE POINTS

• The amount of beta agonist used in hours prior to presentation is a useful marker of likely need for hospital admission.

• A lack of response to initial bronchodilator treatment and/or a requirement for repeat doses indicates the likely requirement for referral to hospital and/or admission.
PRACTICE POINTS

• For most patients initial treatment with β-2 agonist via a spacer and oral steroids is likely to be sufficient.

• Reserve nebulised β-2 agonists for those with severe asthma who do not respond to initial inhaled therapy.

• Magnesium sulphate is the preferred IV bronchodilator in life-threatening asthma.

• No role for IV β-2 agonists or IV aminophylline.

• No role for adrenaline unless asthma accompanied by anaphylaxis and angioedema.
ALGORITHM FOR MANAGEMENT OF SEVERE ASTHMA

**IMMEDIATELY**

MILD/MODERATE FEV₁/PEF >50%
Give 6x100µg salbutamol via MDI and spacer

SEVERE FEV₁/PEF 30-50%
Give 6x100µg salbutamol via MDI and spacer or salbutamol 2.5mg via nebulisation, prednisone 40mg, oxygen if required to keep sats > 92%

LIFE-THREATENING FEV₁/PEF <30%
Give continuous salbutamol via nebulisation, ipratropium bromide 500µg via nebulisation, IV hydrocortisone 100mg or prednisone 40mg, oxygen if required to keep sats > 92%

**15-60 MIN**

FEV₁/PEF >70%
Consider oral prednisone 40mg, if not given above, and ICS

FEV₁/PEF 50-70%
Give prednisone 40mg if not given above
Repeat salbutamol 6x100µg via MDI and spacer

FEV₁/PEF <50%
Give 6x100µg salbutamol via MDI and spacer or salbutamol 2.5mg via nebulisation, up to 3 times over 1st hour
Ipratropium bromide 6x20µg via MDI and spacer or 500µg via nebulisation, oxygen if required to keep sats 92-96%

**ARRANGE URGENT TRANSFER TO HOSPITAL BY AMBULANCE**
All patients will require hospital admission

**REFER TO ICU/HDU**
Give salbutamol 2.5mg via nebulisation, frequency determined by response, up to continuously
Ipratropium bromide 500µg via nebulisation, up to hourly, consider IV magnesium sulphate 1.2-2.0g over 20 min, oxygen if required to keep sats 92-96%
Investigations include ABG, CXR, U & E

**REASSESS**

DISCHARGE
Once pre-discharge conditions are met

**1-2 HR**

STABLE
No signs of severe asthma and FEV₁/PEF > 70%

UNSTABLE
Signs of severe asthma or FEV₁/PEF <50-70%

DISCHARGE
Once pre-discharge conditions are met

ADMIT

---

*Administered in individual doses
For practical purposes, the FEV₁- and PEF are considered interchangeable when expressed as % predicted for the purpose of assessment of acute asthma severity
PRE-DISCHARGE CONSIDERATIONS

- Most patients presenting with asthma exacerbations require a course of oral prednisone, 40mg for at least 5 days.
- All patients should have an ICS started or current use reinforced.
- Before patient goes home, ensure that they:
  - understand treatment and signs of worsening asthma
  - have peak flow meter and know at what level to contact emergency medical help if worsens
  - can use inhalers correctly, have supply of their medications
  - have an early follow-up appointment with primary healthcare team
This summary provides busy health professionals with key guidance for assessing and treating adult asthma.

Its source document “Asthma and Respiratory Foundation NZ Adult Asthma Guidelines” is available for download at nzasthmaguidelines.co.nz or asthmaandrespiratory.org.nz