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
The diagnosis of asthma starts with the recognition of a characteristic pattern of symptoms and signs, in the absence of an alternative explanation.

The key to making the diagnosis of asthma is to take a careful clinical history, and then to undertake a clinical examination, document variable expiratory airflow limitation and assess response to inhaled bronchodilator and/or inhaled corticosteroid (ICS) treatment. There is no reliable single ‘gold standard’ diagnostic test.

Clinical features that increase or decrease the probability of asthma in adults

**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

Measurement of bronchial hyperresponsiveness, blood eosinophils and FeNo may be informative.

**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
**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.

### STEPs

#### STEP 1
**SABA reliever therapy**

- **FP/Salm:** Fluticasone Propionate/Salmeterol
- **Bud/Form:** Budesonide/Formoterol
- **OD:** once daily
- **BD:** twice daily

#### STEP 2
**Maintenance standard dose ICS and SABA reliever therapy**

- **FP/Salm:** Fluticasone Propionate/Salmeterol
- **Bud/Form:** Budesonide/Formoterol
- **OD:** once daily
- **BD:** twice daily

#### STEP 3
**Maintenance standard dose ICS/LABA and SABA reliever therapy**

- **FP/Salm:** Fluticasone Propionate/Salmeterol
- **Bud/Form:** Budesonide/Formoterol
- **OD:** once daily
- **BD:** twice daily

#### STEP 4
**Maintenance high dose (not standard) ICS/LABA and SABA reliever therapy**

- **FP/Salm:** Fluticasone Propionate/Salmeterol
- **Bud/Form:** Budesonide/Formoterol
- **OD:** once daily
- **BD:** twice daily

#### STEP 5
**Maintenance high dose (not standard) ICS/LABA and SABA reliever therapy**

- **FP/Salm:** Fluticasone Propionate/Salmeterol
- **Bud/Form:** Budesonide/Formoterol
- **OD:** once daily
- **BD:** twice daily

#### RECOMMENDED ICS/LABA DOSES IN ADULT ASTHMA

<table>
<thead>
<tr>
<th>STEP 3</th>
<th>STEP 4 + 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FP/Salm 50/25 2 inh BD</strong></td>
<td><strong>FP/Salm 250/50 1 inh BD</strong></td>
</tr>
<tr>
<td><strong>FP/Salm 100/50 1 inh BD</strong></td>
<td><strong>FP/Salm 250/50 1 inh BD</strong></td>
</tr>
<tr>
<td><strong>Bud/Form 100/6 2 inh BD</strong></td>
<td><strong>Bud/Form 200/6 2 inh BD</strong></td>
</tr>
<tr>
<td><strong>Bud/Form 200/6 1 inh BD</strong></td>
<td><strong>FF/Vilanterol 100/25 1 inh OD</strong></td>
</tr>
<tr>
<td><strong>SMART regimen</strong></td>
<td><strong>[FF/Vilanterol 200/25 currently not funded]</strong></td>
</tr>
<tr>
<td><strong>Bud/Form 100/6 2 inh BD</strong></td>
<td><strong>[FF/Vilanterol 200/25 currently not funded]</strong></td>
</tr>
<tr>
<td><strong>Bud/Form 200/6 1 inh BD</strong></td>
<td><strong>SMART regimen</strong></td>
</tr>
</tbody>
</table>

- **SABA for relief**
- **+ 1 inh for relief**

**FF/Vilanterol:** Fluticasone Furoate/Vilanterol

**OD:** once daily

**BD:** twice daily

**SMART:** Single ICS/LABA Maintenance and Reliever Therapy

---

At every step consider treatable traits, including overlapping disorders, comorbidities, environmental and behavioural factors.
ALGORITHM FOR MANAGEMENT OF SEVERE ASTHMA

IMMEDIATELY

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

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*

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

ASSESS SEVERITY

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%

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

DISCHARGE
Once pre-discharge conditions are met

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%

*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
THE FOUR STEP ADULT ASTHMA CONSULTATION

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 history of 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 asthma action plan**
   - Decide which plan to use:
     - 3 stage maintenance ICS + SABA reliever
     - 4 stage maintenance ICS + SABA reliever
       (This includes the instruction to increase dose and frequency of ICS in worsening asthma)
     - 3 stage ICS/LABA + SABA reliever
     - Single 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.
Better breathing,
better living