ASTHMA & RESPIRATORY FOUNDATION NZ ADULT ASTHMA GUIDELINES: A QUICK REFERENCE GUIDE[1]

1. Richard Beasley, Bob Hancox, Matire Harwood, Kyle Perrin, Betty Poot, Janine Pilcher, Jim Reid, Api Talemaitoga, Darmiga Thayabaran

NZ-0444. Date of preparation: February 2017

Asthma + Respiratory FOUNDATION NZ

ADULT ASTHMA

GUIDE SUMMARY

This summary provides busy health professionals with key guidance for assessing and treating adult asthma.

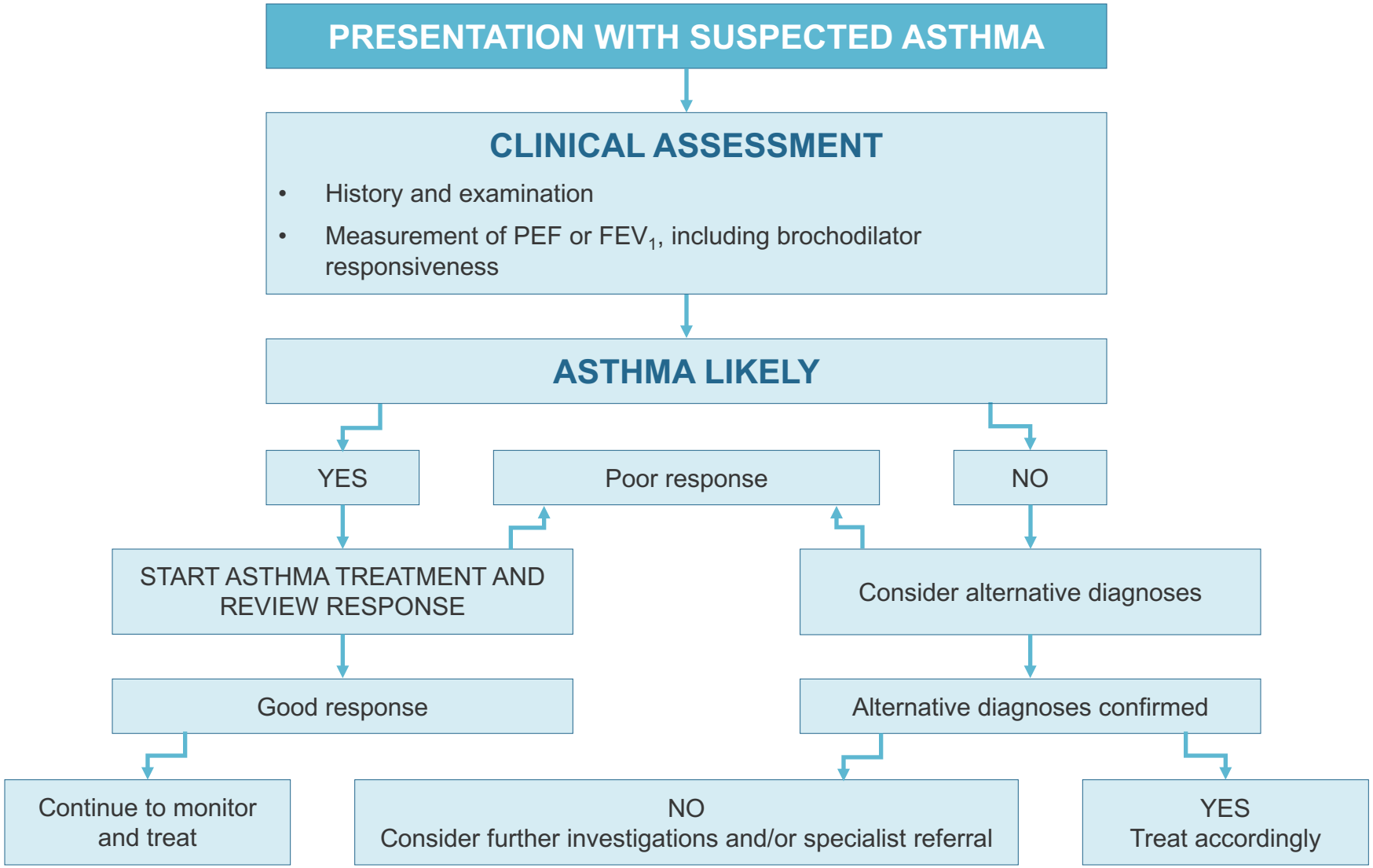
Its source document ***"Asthma and Respiratory Foundation NZ Adult Asthma Guidelines"*** is available for download at ***nzasthmaguidelines.co.nz*** or ***asthmaandrespiratory.org.nz***

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 ($FEV_1/FVC < 0.7$)
- Increase in FEV_1 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 FEV_1 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 brochodilator responsiveness
ASTHMA LIKELY
YES
Poor response
NO
START ASTHMA TREATMENT AND REVIEW RESPONSE
Consider alternative diagnoses
Good response
Alternative diagnoses confirmed
Continue to monitor and treat
NO
Consider further investigations and/or specialist referral
YES
Treat accordingly

ASSESSING ASTHMA CONTROL AND FUTURE RISK

- Asthma control test
- Assessment of risk of severe exacerbations / mortality

ASTHMA CONTROL TEST™ (ACT)

SCORE

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

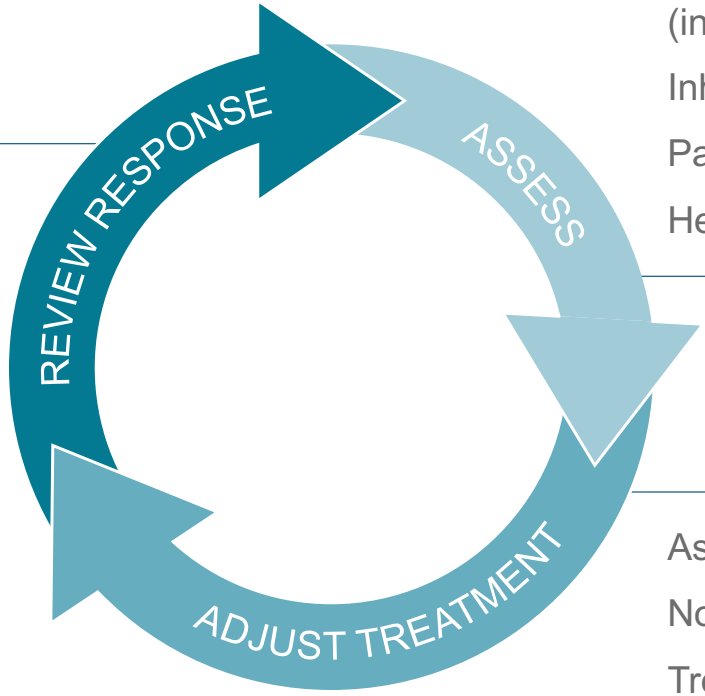
PATIENT TOTAL SCORE

ACT “cut-off’ levels

Poorly or not controlled	Somewhat controlled	Well or completely controlled
≤15	16-19	≥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



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

Adapted from GINA

Global Strategy for Asthma Management and Prevention. Global Initiative for Asthma (GINA). 2016. Pocket Guide or Health Professionals.www.ginasthma.org

INITIAL TREATMENT: WHEN TO ADD ICS

- If symptoms or beta agonist use ≥2 x/week
- If severe exacerbation last year

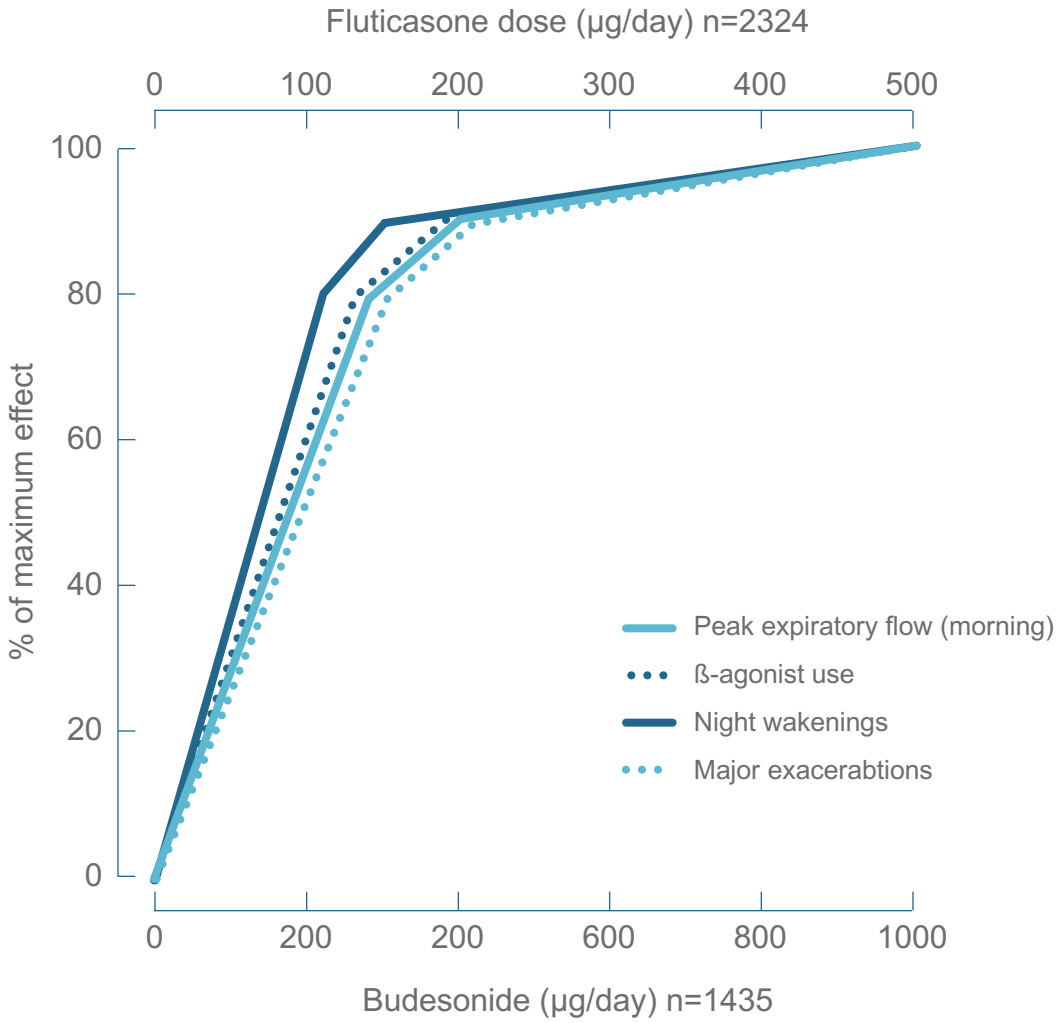
INITIAL TREATMENT: WHEN TO ADD ICS

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

Beclomethasone dipropionate	400-500 µg/day
Beclomethasone dipropionate extrafine	200 µg/day
Budesonide	400 µg/day
Fluticasone propionate	200-250 µg/day

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.



Derived from [Holt et al. BMJ 2001; Masoli et al. ERJ 2004]

Dose-response relation of inhaled fluticasone propionate in adolescents and adults with asthma: meta-analysis, Holt et al; BMJ 2001: VOLUME 323
Dose-response relationship of inhaled budesonide in adult asthma: a meta-analysis, M. Masoli, et al European Respiratory Journal 2004 23: 552-558;

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

Symbicort Turbuhaler Data Sheet, 03 March 2016

NZ Guideline recommendations of SMART

- The SMART regimen is more effective at reducing severe exacerbations than maintenance ICS/LABA with SABA reliever therapy[1]
- The SMART regimen is the preferred ICS/LABA regimen for treating patients at risk of severe exacerbations[1]

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

STEP 3
Maintenance standard dose ICS/LABA and SABA reliever therapy
or
Standard dose 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
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

RECOMMENDED ICS/LABA DOSES IN ADULT ASTHMA

STEP 3		STEP 4 + 5	
FP/Salm 50/25 2 inh BD	+ SABA for relief	FP/Salm 125/25 2 inh BD	+ SABA for relief
FP/Salm 100/50 1 inh BD	+ SABA for relief	FP/Salm 250/50 1 inh BD	+ SABA for relief
Bud/Form 100/6 2 inh BD	+ SABA for relief	Bud/Form 200/6 2 inh BD	+ SABA for relief
Bud/Form 200/6 1 inh BD	+ SABA for relief	FF/Vilanterol 100/25 1 inh OD	+ SABA for relief
Or		[FF/Vilanterol 200/25 currently not funded]	
SMART regimen		*Or*	
Bud/Form 100/6 2 inh BD	+ 1 inh for relief	SMART regimen	
Bud/Form 200/6 1 inh BD	+ 1 inh for relief	Bud/Form 200/6 2 inh BD	+ 1 inh for relief
		[Bud/Form 400/12 is not recommended]	

NZMJ 18 November 2016, Vol 129 No 1445

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

Name: Doctor:

Date of plan: Doctor phone:

Feeling good

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

Know when and how to take your medicine

Preventer *[name]*	*puffs*	*every morning*
	puffs	*every night*
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

Severe

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

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

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

Name: Doctor:

Date of plan: Doctor phone:

Feeling good

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

Know when and how to take your medicine

Preventer	*puffs*	*every morning*
[name]	*puffs*	*every night*
Reliever	*puffs*	*when you need it to relieve your asthma symptoms*
[name]		

Remember:

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

Carry your reliever at all times

Getting worse

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

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

Other instructions:

Severe

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

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

Other instructions:

Emergency

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 SMART* ASTHMA ACTION PLAN

*Single Maintenance and Reliever Therapy

Name: *Doctor:*

Date of plan: *Doctor phone:*

Know your asthma symptoms

Know when and how to take your medicine

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

Your peak flow reading is above

Symbicort	*dose(s)*	*every morning*
	dose(s)	*every night*
Symbicort	*1 dose when you need it to relieve your asthma symptoms*	

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

Severe

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

Your peak flow reading is below

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*

Important: You need to see your doctor today

Other instructions:

Emergency

Emergency

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

Your peak flow reading is below

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

Best peak flow: _____

Plan prepared by: _____

Next review date: _____

Signature: _____

PERSPECTIVE
PRECISION MEDICINE FOR AIRWAY DISEASES

Treatable traits: toward precision medicine of chronic airway diseases

Alvar Agusti[1], Elisabeth Bel[2], Mike Thomas[3], Claus Vogelmeier[4], Guy Brusselle[5,6], Stephen Holgate[7], Marc Humbert[8], Paul Jones[9], Peter G. Gibson[10], Jørgen Vestbo[11], Richard Beasley[12] and Ian D. Pavord[13]

Agusti et al; Eur Respir J 2016; 47: 410–419

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; Eur Respir J 2016; 47: 410–419

TREATABLE TRAITS

Environmental:

- Smoking
- Occupational exposures
- Provoking factors e.g. aspirin, other NSAIDs

Behavioural:

- Adherence
- Inhaler technique

Agusti et al; Eur Respir J 2016; 47: 410–419

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

Patient Scenario not a real case – prepared by Richard Beasley

SYSTEMATIC REVIEW:

- Eosinophilic asthma[1]
- Psychogenic vocal cord dysfunction[2]
- Allergic bronchopulmonary aspergillosis[2]
- Chronic rhinosinusitis[2]
- Occupational asthma[2]
- Adherence, inhaler technique[2]

Patient Scenario not a real case – prepared by Richard Beasley

1. Agusti et al; Eur Respir J 2016; 47: 410–419
2. 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

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

STEP 3

Maintenance standard dose ICS/LABA and SABA reliever therapy

or

Standard dose 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

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

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

- 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:

- stage 3 maintenance ICS + SABA reliever
- stage 4 maintenance ICS + SABA reliever
  [This includes the instruction to increase dose and frequency of ICS in worsening asthma]
- stage 3 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.

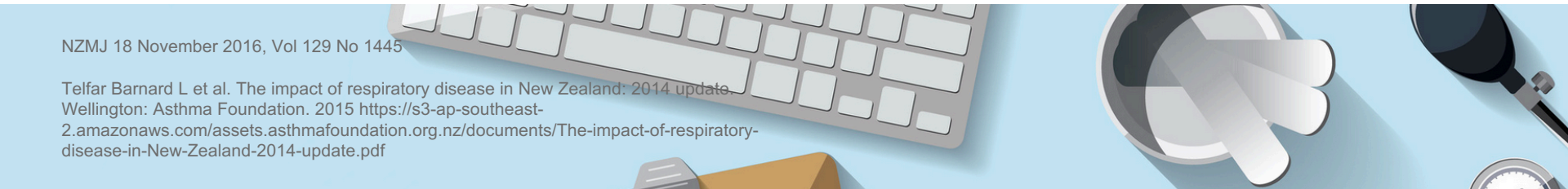
Enter the prednisone regimen. The standard regimen in severe asthma is 40mg daily for 5 days. An alternative regimen is 40mg daily until there is definite improvement and then 20mg daily for the same number of days.

Enter additional instructions in the box provided. This may include avoidance of provoking factors such as aspirin.

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



NZMJ 18 November 2016, Vol 129 No 1445

Telfar Barnard L et al. The impact of respiratory disease in New Zealand: 2014 update. Wellington: Asthma Foundation. 2015 https://s3-ap-southeast-2.amazonaws.com/assets.asthmafoundation.org.nz/documents/The-impact-of-respiratory-disease-in-New-Zealand-2014-update.pdf

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
- FEV_1 or PEF >50% best or predicted
- No features of acute severe asthma

Severe asthma – any one of:

- FEV_1 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:

- FEV_1 or PEF <30% best or predicted
- SpO_2 <92% or PaO_2 <50 mmHg
- $PaCO_2$ ≥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

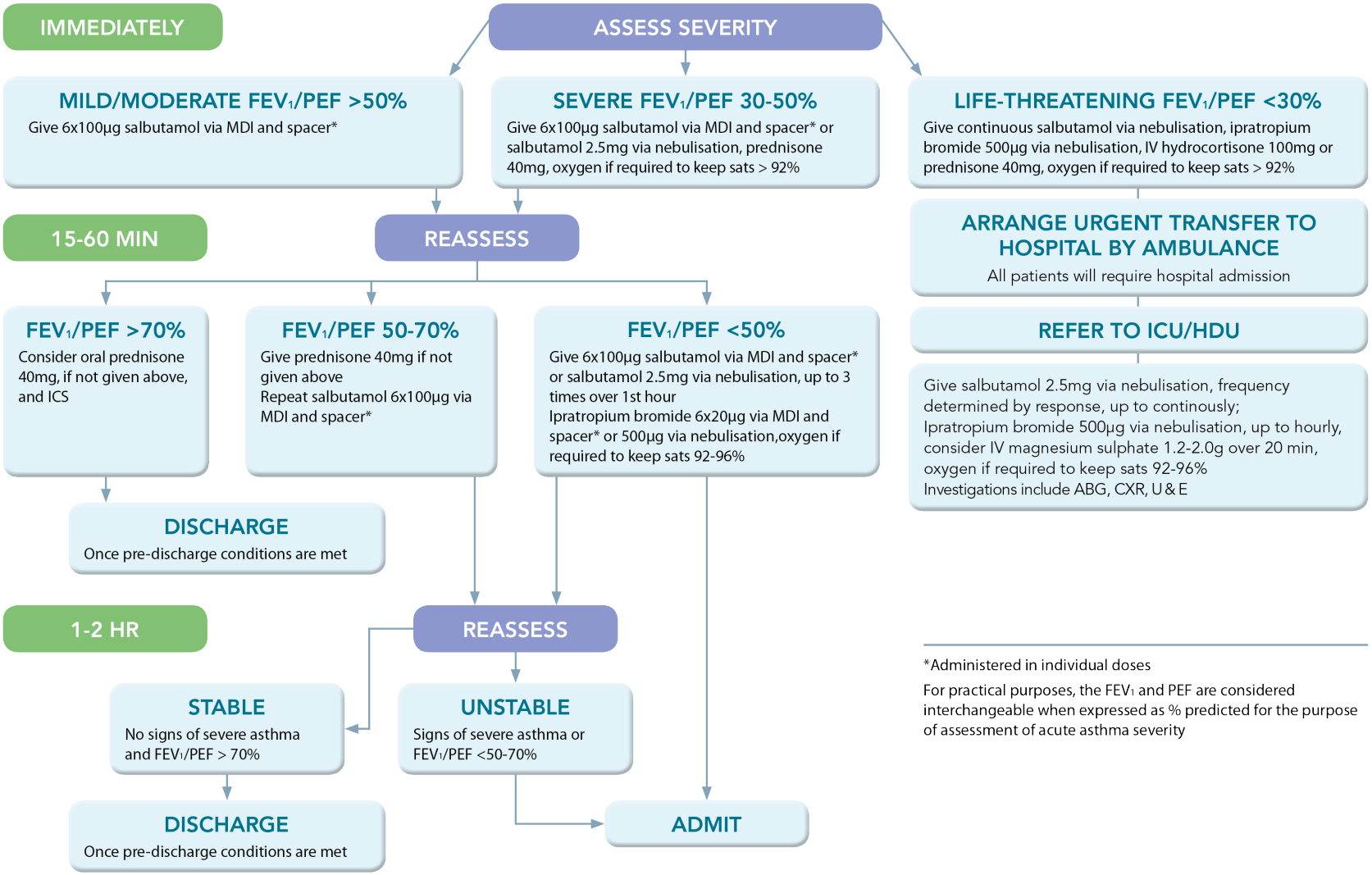
PRACTICE POINTS

- 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



*Administered in individual doses

For practical purposes, the FEV_1 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

Asthma + Respiratory FOUNDATION NZ

ADULT ASTHMA

GUIDE SUMMARY

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***