Welcome to the Respiratory clinical update – asthma

This webinar will start shortly.

We are just waiting for people to join.

Respiratory clinical update - asthma

Zoom webinar – Wednesday 12 May 2021 6.30pm

Acknowledgement of Country

I acknowledge the Tasmanian Aboriginal people as the traditional owners and ongoing custodians of the land on which we are meeting this evening via webinar. I pay our respects to Elders past, present and emerging.

I would also like to acknowledge Aboriginal people who are with us this evening.

Learning outcomes

After this session, I will be able to:

- Evaluate patients with asthma
- Identify referral pathways for patients with asthma
- Describe correct inhaler techniques for patients with asthma

Some housekeeping

- Tonight's webinar is being recorded
- Please use the Zoom Q&A chat feature to ask questions
- Answers to any questions we can’t answer tonight will be circulated with the recording in the coming days
- At the end of the webinar you will be asked to complete an evaluation survey, this is important to help us improve our events program
- Please don’t forget to register for your next webinar at:

  https://www.primaryhealthtas.com.au/for-health-professionals/events/

Presenters

- **Dr Ben Johnson** – Registrar, Respiratory Medicine, Royal Hobart Hospital
- **Lyn Reid** – Clinical Nurse Consultant, Royal Hobart Hospital

Asthma

Ben Johnson

Respiratory Registrar RHH

Overview

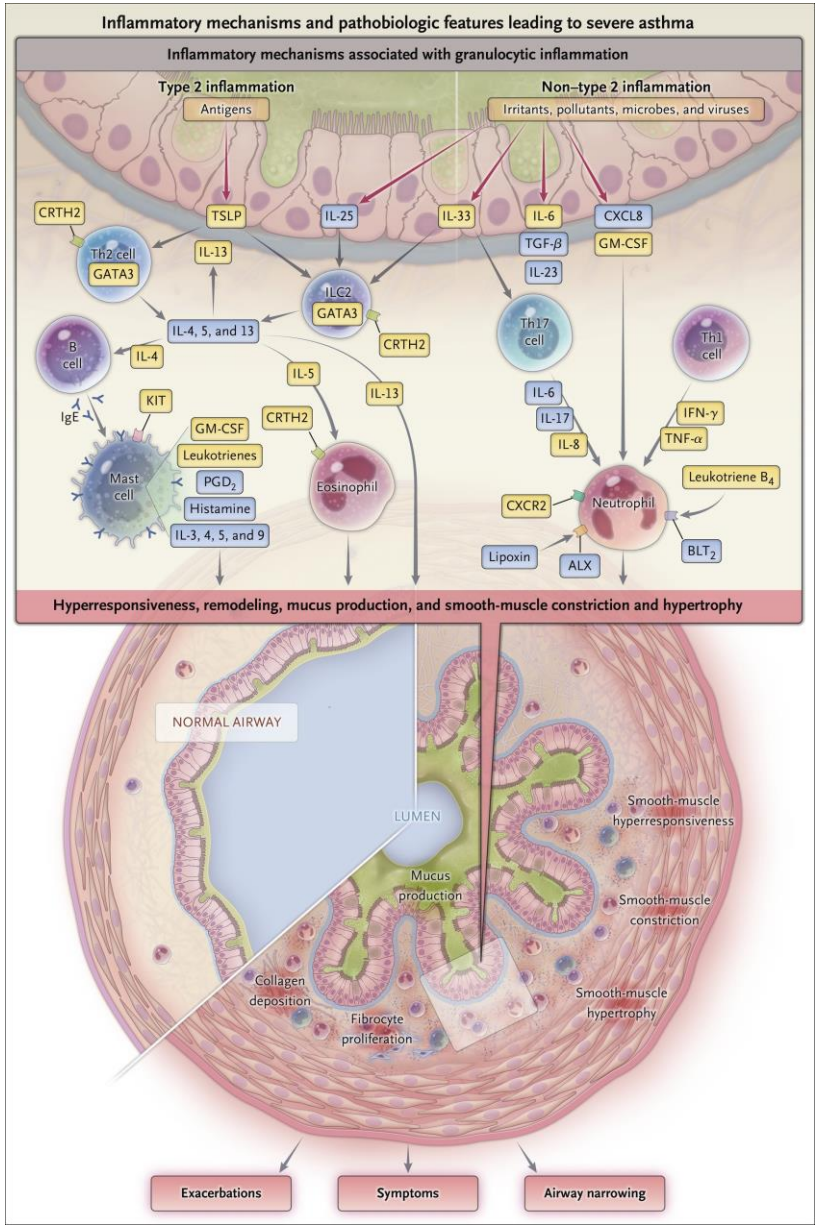
- Making the diagnosis
- Investigations required
- Stepwise management
  - Mild asthma guideline changes
  - Inhaler choice
- When to refer
- (COVID-19 and asthma)

Asthma

- Heterogeneous **inflammatory** condition
- Classical symptoms of intermittent wheeze, cough and SOB
- Variable airflow limitation and airway hyperresponsiveness
- Generally (but not always) atopic history
- Variable approaches to management
- A lot of patients have suboptimal control

Pathogenesis

- Teaching used to be all patients had an allergic history (type 2 or eosinophil-mediated inflammation)
  - IL-4, IL-5, IL-13 → IgE production → activation of mast cells and eosinophils
  - General target for biologic therapy
  - Measure eosinophils, IgE, FeNO (sputum eosinophils)
- Increasing evidence for neutrophil-mediated inflammation (non-allergic)
  - Infections, pollutants, smoking
  - Less likely to respond to steroids
- Some patients have both
- Eventually get airway remodelling and narrowing and fixed airflow obstruction if left untreated



N Engl J Med 2017;377:965-76

Diagnosis

Diagnosis of Asthma

- Symptoms include
  - Wheeze
  - SOB
  - Chest tightness
  - Cough
- Generally variable with time and in intensity
  - Often worse at night/early morning
- Often have a defined trigger
  - Exercise, pollen/allergens, infection, dusts, workplace
  - Atopy
- Examination classically polyphonic wheeze (often normal)
- Need to demonstrate **VARIABLE** airflow limitation

Asthma is more likely to explain the symptoms if any of these apply	Asthma is less likely to explain the symptoms if any of these apply
More than one of these symptoms: › wheeze › breathlessness › chest tightness › cough	Dizziness, light-headedness, peripheral tingling
Symptoms recurrent or seasonal	Isolated cough with no other respiratory symptoms
Symptoms worse at night or in the early morning	Chronic sputum production
History of allergies (e.g. allergic rhinitis, atopic dermatitis)	No abnormalities on physical examination of chest when symptomatic (over several visits)
Symptoms obviously triggered by exercise, cold air, irritants, medicines (e.g. aspirin or beta blockers), allergies, viral infections, laughter	Change in voice
Family history of asthma or allergies	Symptoms only present during upper respiratory tract infections
Symptoms began in childhood	Heavy smoker (now or in past)
Widespread wheeze audible on chest auscultation	Cardiovascular disease
FEV1 or PEF lower than predicted, without other explanation	Normal spirometry or PEF when symptomatic (despite repeated tests)
Eosinophilia or raised blood IgE level, without other explanation	
Symptoms rapidly relieved by a SABA bronchodilator	

Investigations

- Spirometry!
  - Peak flow diary can occasionally be helpful (need to ensure adequate technique)
    - Even with adequate and consistent technique there can be large variation in peak flows
    - Best done BD as diurnal variation
- Biomarkers often useful – particularly if unclear diagnosis or unsure if COPD or asthma (or both)
  - FBE looking for eosinophilia
  - IgE looking for atopy
  - Specific IgE (RAST) if specific clinical indication
- Imaging rarely required beyond CXR
  - Exceptions
    - Looking for alternative diagnosis (emphysema, eosinophilic pneumonia)
    - Clinical concern regarding ABPA

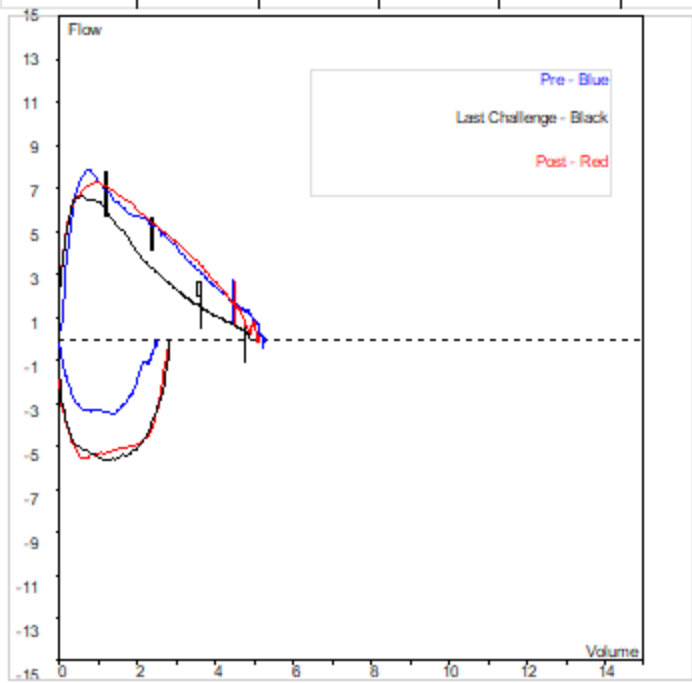
Spirometric Diagnosis of Asthma

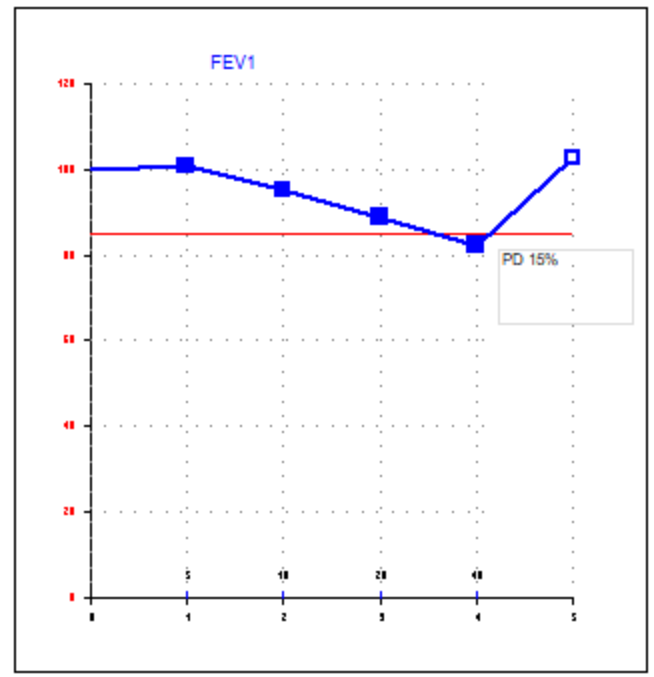
- Bronchodilator response
  - Need to have BOTH ≥12% and ≥200ml improvement post bronchodilator
- Positive bronchoprovocation test
  - Can be indirect (Mannitol, HIS, exercise) or direct (methacholine)
    - Indirect – act on mediators of bronchoconstriction (water shifts, histamine, leukotrienes, adenosine, bradykinin etc), representative of airway inflammation
    - Direct – act on bronchial smooth muscle cells, more representative of smooth muscle reactivity
  - Direct has a higher sensitivity but a lower specificity (can be positive in smokers)
  - Indirect have a lower sensitivity but a higher specificity
  - Positive indirect test is a ≥15% drop in FEV1 from baseline, a positive direct test is ≥20% drop in FEV1

Spirometry- GLI 2012	Pre-Bronchodilator Actual	Pred	LLN	%Pred	last challenge%	Post-Bronchodilator Actual	%Pred	%Chng
FEV1(L)	**4.45**	4.08	3.28	*109*	*-18*	**4.50**	*110*	*1*
FVC(L)	**5.25**	4.77	3.81	*110*		**5.08**	*106*	*-3*
FEV1/FVC(%)	*85*	*86*	*75*	*98*		*89*	*103*	*5*

Dose	Control 0.00		Chal. 5.000 mg		Chal. 10.000 mg		Chal. 20.000 mg		Chal. 40.000 mg	
	Meas.	Dif.Cont.%	Meas.	Dif.Cont.%	Meas.	Dif.Cont.%	Meas.	Dif.Cont.%	Meas.	Dif.Cont.%
FEV1(L)	**4.39**	***0***	**4.42**	***1***	**4.18**	***-5***	**3.90**	***-11***	***3.61***	***-18***

Dose	Chal.		Chal.		Chal.		Chal.		Post 400.000 ug	
	Meas.	Dif.Cont.%	Meas.	Dif.Cont.%	Meas.	Dif.Cont.%	Meas.	Dif.Cont.%	Meas.	Dif.Cont.%
FEV1(L)	----	----	----	----	----	----	----	----	***4.50***	***2***

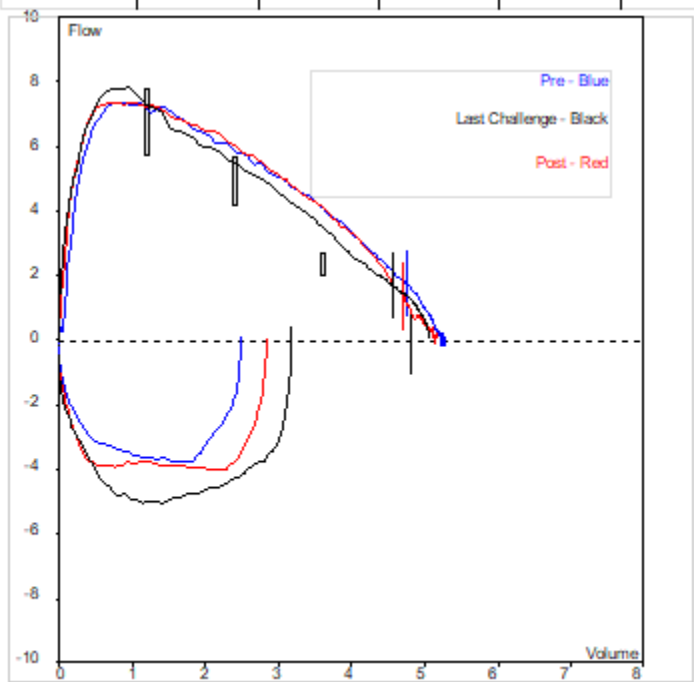


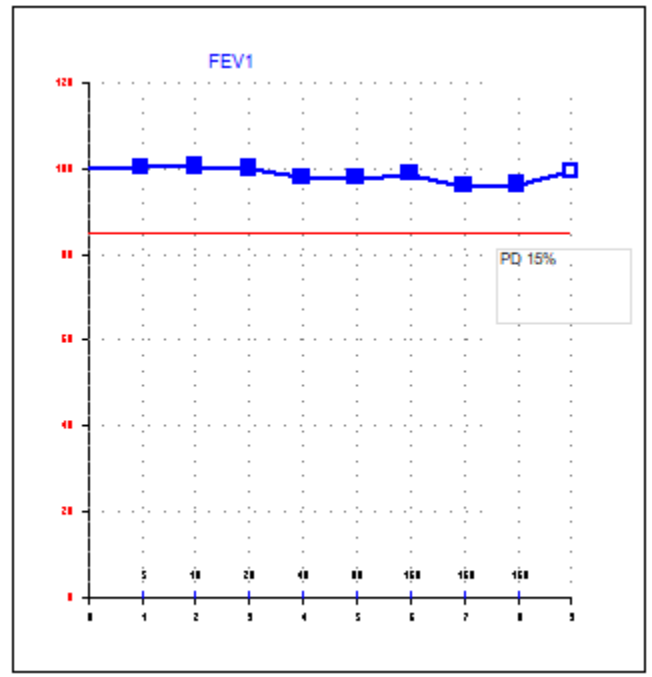


Spirometry- GLI 2012	Pre-Bronchodilator Actual	Pred	LLN	%Pred	last challenge%	Post-Bronchodilator Actual	%Pred	%Chng
FEV1(L)	**4.75**	4.11	3.30	*116*	*-4*	**4.70**	*114*	*-1*
FVC(L)	**5.23**	4.80	3.84	*109*		**5.17**	*108*	*-1*
FEV1/FVC(%)	***91***	*86*	*75*	*105*		***91***	*105*	*0*

Dose	Control 0.00		Chal. 5.000 mg		Chal. 10.000 mg		Chal. 20.000 mg		Chal. 40.000 mg	
	Meas.	Dif.Cont.%	Meas.	Dif.Cont.%	Meas.	Dif.Cont.%	Meas.	Dif.Cont.%	Meas.	Dif.Cont.%
FEV1(L)	**4.73**	***0***	**4.74**	***0***	**4.75**	***0***	**4.73**	***0***	***4.63***	***-2***

Dose	Chal. 80.000 mg		Chal. 160.000 mg		Chal. 160.000 mg		Chal. 160.000 mg		Post 400.000 ug	
	Meas.	Dif.Cont.%	Meas.	Dif.Cont.%	Meas.	Dif.Cont.%	Meas.	Dif.Cont.%	Meas.	Dif.Cont.%
FEV1(L)	**4.62**	***-2***	**4.67**	***-1***	**4.54**	***-4***	***4.55***	***-4***	***4.70***	***-1***





Spirometric Diagnosis of Asthma

- Can also make diagnosis (for PBS reasons) with PEF variability of >15% between highest and lowest peak flows in a 2 week period
- Should be suspicious of asthma if significant difference in serial FEV1s
- FeNO can be a helpful adjunct
  - Surrogate for eosinophilic airway inflammation
  - Generally used as a monitor for disease activity rather than diagnostic

Treatment

National Asthma Council AUSTRALIA

ASTHMA & COPD MEDICATIONS

SABA RELIEVERS

Ventolin Inhaler † ^
salbutamol 100mcg

Asmol Inhaler † ^
salbutamol 100mcg

Bricanyl Turbuhaler [a] [c]
terbutaline 500mcg

Airomir Autohaler ‡ #
salbutamol 100mcg

RESOURCES

TREATMENT GUIDELINES

Australian Asthma Handbook:
asthmahandbook.org.au
COPD-X Plan:
copdx.org.au

INHALER TECHNIQUE

How-to videos, patient and practitioner information
nationalasthma.org.au

Inhalers/MDIs should be used with a compatible spacer

HOW-TO VIDEOS

SCAN ME

SAMA MEDICATION

Atrovent Metered Aerosol † ^
ipratropium 21mcg

NON STEROIDAL PREVENTER

Montelukast Tablet [a]
montelukast
4mg • 5mg • 10mg
Generic medicine suppliers

ICS PREVENTERS

Flixotide Inhaler †
fluticasone propionate
50mcg* • 125mcg • 250mcg
**Flixotide Junior*

Fluticasone Cipla Inhaler †
fluticasone propionate
125mcg • 250mcg

Flixotide Accuhaler †
fluticasone propionate
100mcg* • 250mcg • 500mcg

QVAR Inhaler †
beclometasone
50mcg • 100mcg

Pulmicort Turbuhaler †
budesonide
100mcg • 200mcg • 400mcg

QVAR Autohaler ‡
beclometasone
50mcg • 100mcg

Alvesco Inhaler †
ciclesonide
80mcg • 160mcg

Arnuity Ellipta †
fluticasone furoate
50mcg • 100mcg • 200mcg

ICS/LABA COMBINATIONS

Seretide MDI [a]
fluticasone propionate/salmeterol
50/25 • 125/25 • 250/25 [c]

Fluticasone + Salmeterol Cipla Inhaler [a]
fluticasone propionate/salmeterol
125/25 • 250/25 [c]

Seretide Accuhaler [a]
fluticasone propionate/salmeterol
100/50 • 250/50 • 500/50 [c]

Flutiform Inhaler [a]
fluticasone propionate/formoterol
50/5 • 125/5 • 250/10

Symbicort Turbuhaler [a]
budesonide/formoterol
100/6 • 200/6 • 400/12 [c]

DuoResp Spiromax [a]
budesonide/formoterol
200/6 • 400/12 [c]

Symbicort Rapihaler [a]
budesonide/formoterol
50/3 • 100/3 • 200/6 [c]

Breo Ellipta [a]
fluticasone furoate/vilanterol
100/25 [c] • 200/25

Fostair Inhaler [a]
beclometasone/formoterol
100/6

all units in mcg

LABA MEDICATIONS

Oxis Turbuhaler ‡
formoterol
6mcg • 12mcg

Serevent Accuhaler ‡
salmeterol
50mcg

Onbrez Breezhaler #
indacaterol
150mcg • 300mcg

LAMA MEDICATIONS

Spiriva Respimat # ‡/[a]
tiotropium 2.5mcg

Spiriva Handihaler #
tiotropium 18mcg

Braltus Zonda #
tiotropium 13mcg

Bretaris Genuair #
aclidinium 322mcg

Seebri Breezhaler #
glycopyrronium 50mcg

Incruse Ellipta #
umeclidinium 62.5mcg

LAMA/LABA COMBINATIONS

Spiolto Respimat [c]
tiotropium/olodaterol
2.5/2.5

Brimica Genuair [c]
aclidinium/formoterol
340/12

Ultibro Breezhaler [c]
indacaterol/glycopyrronium
110/50

Anoro Ellipta [c]
umeclidinium/vilanterol
62.5/25

all units in mcg

ICS/LAMA/LABA

Trelegy Ellipta [c]
fluticasone furoate/
umeclidinium/vilanterol
100/62.5/25mcg

ICS, inhaled corticosteroid | LABA, long-acting beta, agonist | LAMA, long-acting muscarinic antagonist | SABA, short-acting beta, agonist | SAMA, short-acting muscarinic antagonist

This chart was developed independently by the National Asthma Council Australia with support from Mylan Health, Chiesi Australia, GSK Australia & AstraZeneca Australia

PBS PRESCRIBERS † Asthma unrestricted benefit ‡ Asthma restricted benefit [a] Asthma authority required ^ COPD unrestricted benefit # COPD restricted benefit [c] COPD authority required

Check TGA and PBS for current age and condition criteria

Inhaler technique

Device-specific checklists

Use these checklists to teach, check and/or confirm the way your patients use their inhalers. Assess patients' inhaler technique at every opportunity.

General tips for inhalers

- Turbuhalers, Respimat and pMDI devices should be primed before they are used for the first time.
- For inhalers with a dose counter, it is important to check there are sufficient doses remaining in the inhaler before each use.
- For the Respimat inhaler, ensure the cartridge has been loaded into the device before using the inhaler for the first time.
- All pMDIs should be shaken before each dose. Do not shake dry powder inhalers (DPIs).
- For all types of inhalers, it is important to keep the chin tilted up so the medicine reaches the lungs effectively.
- After use, wipe down the mouthpiece of the inhaler with a dry cloth.
- For inhalers containing corticosteroids, it is important to rinse the mouth out with water after using the inhaler to remove any residual medicine. This will reduce the likelihood of voice changes and oral thrush.

Pressurised metered-dose inhaler (pMDI)

1. Remove inhaler cap
2. Hold inhaler upright and shake well
3. Breathe out gently, away from the inhaler
4. Put mouthpiece between teeth without biting and close lips to form a good seal
5. Breathe in slowly through the mouth and, at the same time, press down firmly on canister
6. Keep breathing in slowly and deeply and hold breath for about 5 seconds or as long as comfortable
7. While holding breath, remove inhaler from mouth
8. Breathe out gently, away from the inhaler
9. If an extra dose is needed, repeat steps 2 to 8
10. Replace cap

pMDI & spacer

1. Prepare the spacer*
2. Remove inhaler cap
3. Hold inhaler upright and shake well before inserting into spacer
4. Put mouthpiece between teeth without biting and close lips to form a good seal
5. Breathe out gently, into the spacer
6. Hold spacer level and press down firmly on inhaler canister once
7. **Single breath:** Breathe in slowly and deeply and hold breath for around 5 seconds or as long as comfortable. Take spacer out of mouth while holding breath
   OR
   Tidal breath:** Breathe in and out normally for 3 or 4 breaths before removing spacer from the mouth
8. Breathe out gently
9. Remove inhaler from spacer
10. If an extra dose is needed, repeat steps 3 to 9
11. Replace cap on inhaler

Accuhaler

1. Open cover using thumb grip
2. Hold horizontally, load dose by sliding lever until it clicks
3. Breathe out gently, away from the inhaler
4. Place mouthpiece in mouth and close lips to form a good seal, keep inhaler horizontal
5. Breathe in steadily and deeply
6. Hold breath for about 5 seconds or as long as comfortable
7. While holding breath, remove inhaler from mouth
8. Breathe out gently, away from the inhaler
9. If an extra dose is needed[‡] repeat steps 2 to 8
10. Close cover to click shut

Autohaler

1. Remove cap
2. Hold inhaler upright and shake well
3. Push lever up
4. Breathe out gently, away from the inhaler
5. Put mouthpiece between teeth without biting and close lips to form good seal
6. Breathe in slowly and deeply. Keep breathing in after hearing click
7. Hold breath for about 5 seconds or as long as comfortable
8. While holding breath, remove inhaler from mouth
9. Breathe out gently, away from the inhaler
10. Push lever down
11. If an extra dose is needed, repeat steps 2 to 10
12. Replace cap

Breezhaler

1. Remove cap
2. Flip mouthpiece to open
3. Remove capsule from blister and place in chamber
4. Close mouthpiece until it clicks
5. Press side buttons in once and release (do not shake)
6. Breathe out gently, away from inhaler
7. Put mouthpiece between teeth without biting and close lips to form good seal
8. Breathe in quickly and steadily, so capsule vibrates
9. Hold breath for about 5 seconds, or as long as comfortable
10. While holding breath, remove inhaler from mouth
11. Breathe out gently, away from inhaler
12. Open mouthpiece and remove capsule
13. If more than one dose is needed,[‡] repeat steps 3 to 12
14. Close mouthpiece and cap

* New plastic spacers should be prewashed in warm water and dishwashing detergent (without rinsing), and air-dried before first use.
** Tidal breathing recommended for young children and during acute flare ups.
‡ Not usually appropriate for medicines delivered by this device.

Ellipta

1. Slide the cover down until you hear a click (do not shake)
2. Breathe out gently, away from the inhaler
3. Place mouthpiece in mouth and close lips to form a good seal. Do not cover air vent
4. Breathe in steadily and deeply
5. Hold breath for 5 seconds or as long as comfortable
6. While holding breath, remove inhaler from mouth
7. Breathe out gently, away from the inhaler
8. Slide the cover upwards as far as it will go, to cover the mouthpiece

Genuair

1. Remove cap by squeezing arrows and pulling
2. Hold inhaler so large coloured button is facing straight up
3. Without tilting inhaler, press and release the button
4. Check control window has changed to green
5. Breathe out gently, away from inhaler
6. Place mouthpiece in mouth and close lips to form a good seal. Keep inhaler horizontal
7. Breathe in strongly and deeply. Keep breathing in after click is heard
8. Hold breath for about 5 seconds or as long as comfortable
9. While holding breath, remove inhaler from mouth.
10. Breathe out gently, away from inhaler.
11. Check control window has changed to red.
12. Replace cap

Handihaler

1. Open cap
2. Flip open mouthpiece
3. Remove capsule from blister and place in chamber
4. Close mouthpiece until it clicks
5. Press green piercing button in once and release (do not shake)
6. Breathe out gently, away from inhaler
7. Place mouthpiece between teeth without biting and close lips to form a good seal
8. Breathe in slowly and deeply, so capsule vibrates
9. Keep breathing in as long as comfortable
10. While holding breath, remove inhaler from mouth
11. Breathe out gently, away from inhaler
12. Repeat steps 7 to 11 to take the full dose
13. Open mouthpiece and remove capsule
14. Close mouthpiece and cap

Respimat

1. Hold inhaler upright with the cap closed
2. Turn base in direction of arrows until it clicks (half a turn)
3. Open the cap until it snaps fully open
4. Breathe out gently, away from inhaler
5. Place mouthpiece in mouth and close lips to form a good seal. Do not cover air vents
6. Breathe in slowly and deeply through mouth and, at the same time, press down on the dose button
7. Keep breathing in slowly and deeply
8. Hold breath for 5 seconds or as long as comfortable
9. While holding breath, remove inhaler from mouth
10. Breathe out gently, away from inhaler
11. Click cap shut
12. Repeat from step 1 to get the full dose (as two inhalations is the usual dose for medicines used with Respimat)

Spiromax

1. Hold inhaler upright with mouthpiece cover at the bottom
2. Open the mouthpiece cover downwards until it clicks
3. Breathe out gently, away from inhaler
4. Place mouthpiece between teeth without biting and close lips to form a good seal. Do not cover air vents
5. Breathe in strongly and deeply
6. While holding breath, remove inhaler from mouth
7. Hold breath for 5 seconds or as long as comfortable
8. Breathe out gently, away from inhaler
9. Close mouthpiece cover
10. If an extra dose is needed, repeat steps 1 to 9

Turbuhaler

1. Unscrew and remove cover
2. Keep inhaler upright while twisting grip
3. Twist around and then back until click is heard
4. Breathe out gently, away from the inhaler
5. Place mouthpiece between teeth without biting and close lips to form a good seal. Do not cover air vents
6. Breathe in strongly and deeply
7. Hold breath for about 5 seconds or as long as comfortable
8. Remove inhaler from mouth
9. Breathe out gently away from the inhaler
10. If an extra dose is needed, repeat steps 2 to 9
11. Replace cover

Other devices are available for inhaled medicines – please see the manufacturer's Product Information for instructions

These checklists are based on the National Asthma Council Australia's Information paper for health professionals: Inhaler technique for people with asthma or COPD. To view the full document visit: www.nationalasthma.org.au

nps.org.au

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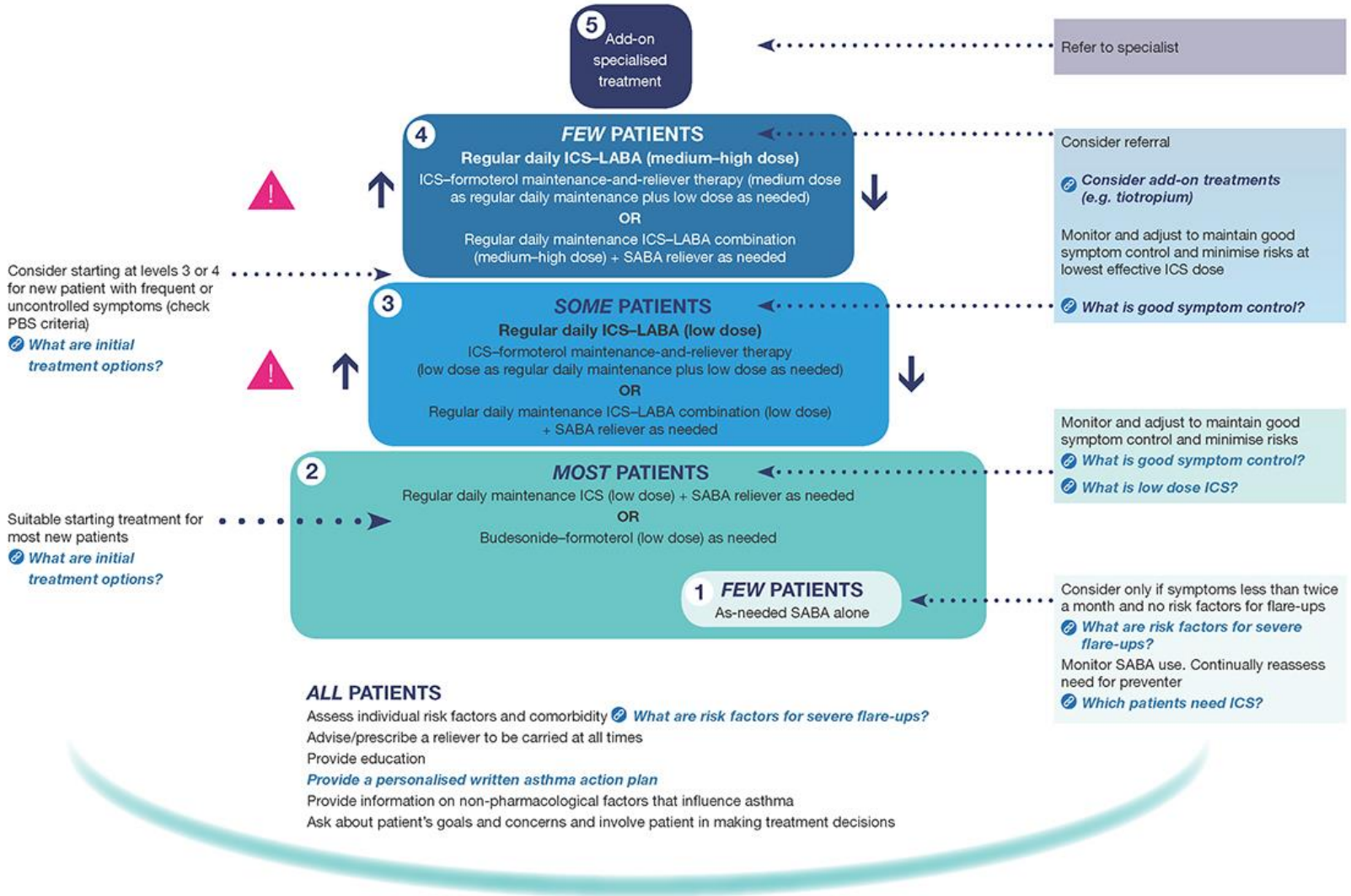
National Asthma Council AUSTRALIA

NPS MEDICINEWISE

Inhaled corticosteroid	*Daily dose (microg)*		
	Low	*Medium*	*High*
Beclometasone dipropionate †	100–200	250–400	>400
Budesonide	200–400	500–800	>800
Ciclesonide	80–160	240–320	>320
Fluticasone furoate*	—	100	200
Fluticasone propionate	100–200	250–500	>500

FIGURE Selecting and adjusting medication for adults and adolescents

National Asthma Council | Australian Asthma Handbook



ICS	inhaled corticosteroid
LABA	long-acting beta$_2$ agonist
SABA	short-acting beta$_2$ agonist

Before you consider stepping up, check that:
- symptoms are due to asthma
- inhaler technique is correct
- adherence is adequate.

Consider stepping up if good control is not achieved despite good adherence and correct inhaler technique.

When asthma is stable and well controlled for 2–3 months, consider stepping down
Stepping down treatment in adults

Aims of treatment

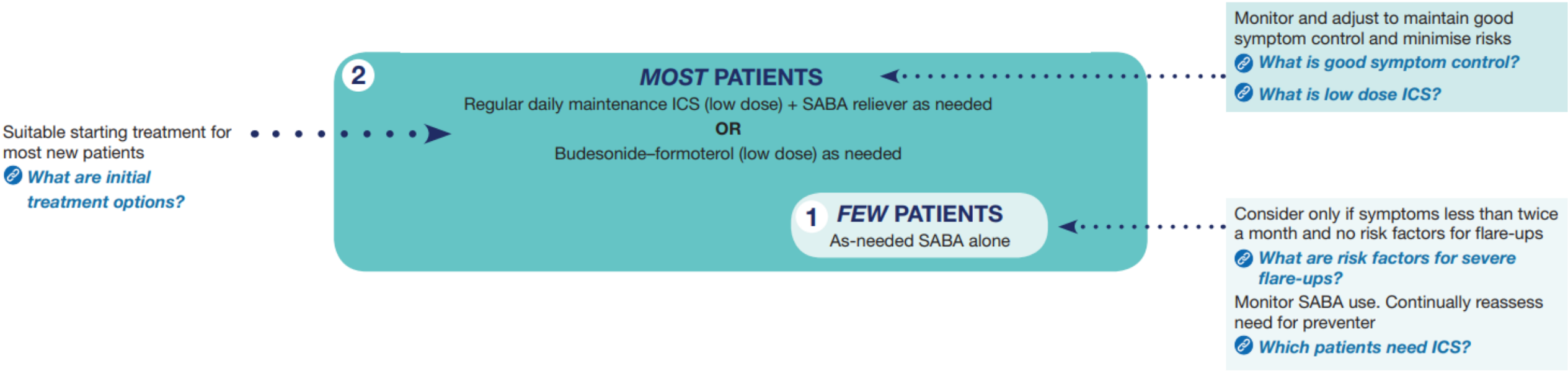
- Reduce risk of (severe) exacerbations
- Improve asthma control/symptoms and QoL
- Avoid loss of lung function
  - No definite correlation between lung function and symptoms in asthma

Good control	Partial control	Poor control
All of: › Daytime symptoms ≤2 days per week › Need for SABA reliever ≤2 days per week† › No limitation of activities › No symptoms during night or on waking	One or two of: › Daytime symptoms >2 days per week › Need for SABA reliever >2 days per week† › Any limitation of activities › Any symptoms during night or on waking	Three or more of: › Daytime symptoms >2 days per week › Need for SABA reliever >2 days per week† › Any limitation of activities › Any symptoms during night or on waking

Risk Factors for Exacerbations

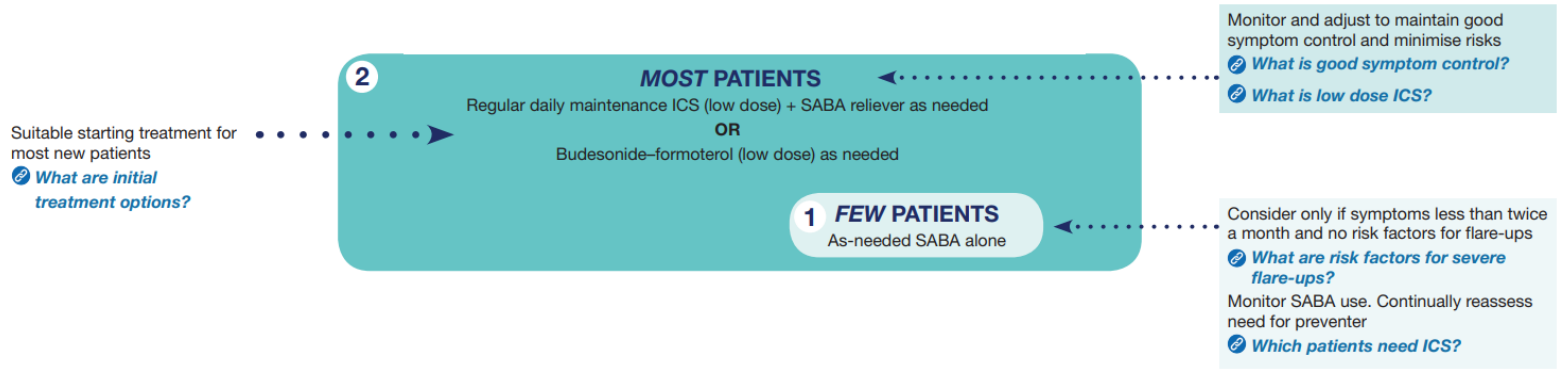
- Previous intubation for asthma
- Severe exacerbation in last 12/12
- Uncontrolled asthma
- High SABA use
- Poor adherence to therapy
- Obesity
- Chronic rhinosinusitis
- GORD
- Food allergy
- Pregnancy
- Smoking
- Allergen exposure/air pollution
- Major psychological or socioeconomic issues
- FEV1 <60%
- High bronchodilator reversibility
- High levels of type 2 inflammation (high Eosinophils, high FeNO)

Step 1/2



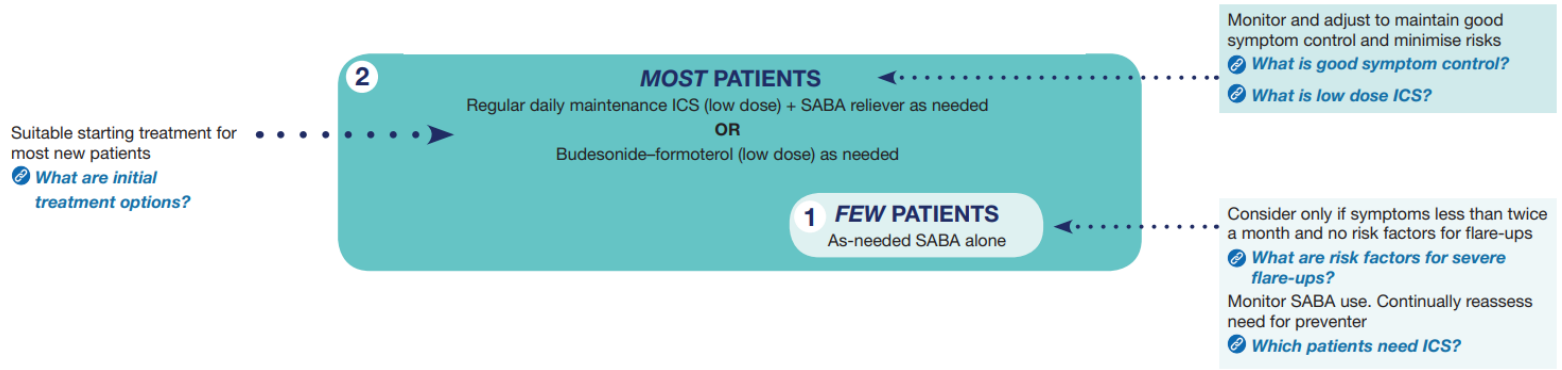
- These steps are generally used for mild and infrequent asthma
- Asthma handbook suggests appropriate patients for step 1 include:
  - Patients with symptoms <2/month AND
    - Not waking due to asthma
    - No oral steroid requirement in last 12 months
    - No other risk factors for severe flare-ups

Step 1/2



- Patients with infrequent symptoms but with above issues are recommended to be on either ICS + PRN SABA or PRN ICS/LABA
- Most recent GINA guidelines recommend no one be prescribed SABA only
  - “Biggest update in asthma management in 30 years”
  - SABA only increases risk of exacerbations and lower lung function, as well as increasing airway inflammation, exercise-induced bronchoconstriction and tachyphylaxis
  - Evidence that >3 cannisters/year = increased risk of severe exacerbations, >12 with increased risk of death
    - Likely primarily as a marker of poor underlying control rather than direct contribution from SABA

Step 1/2



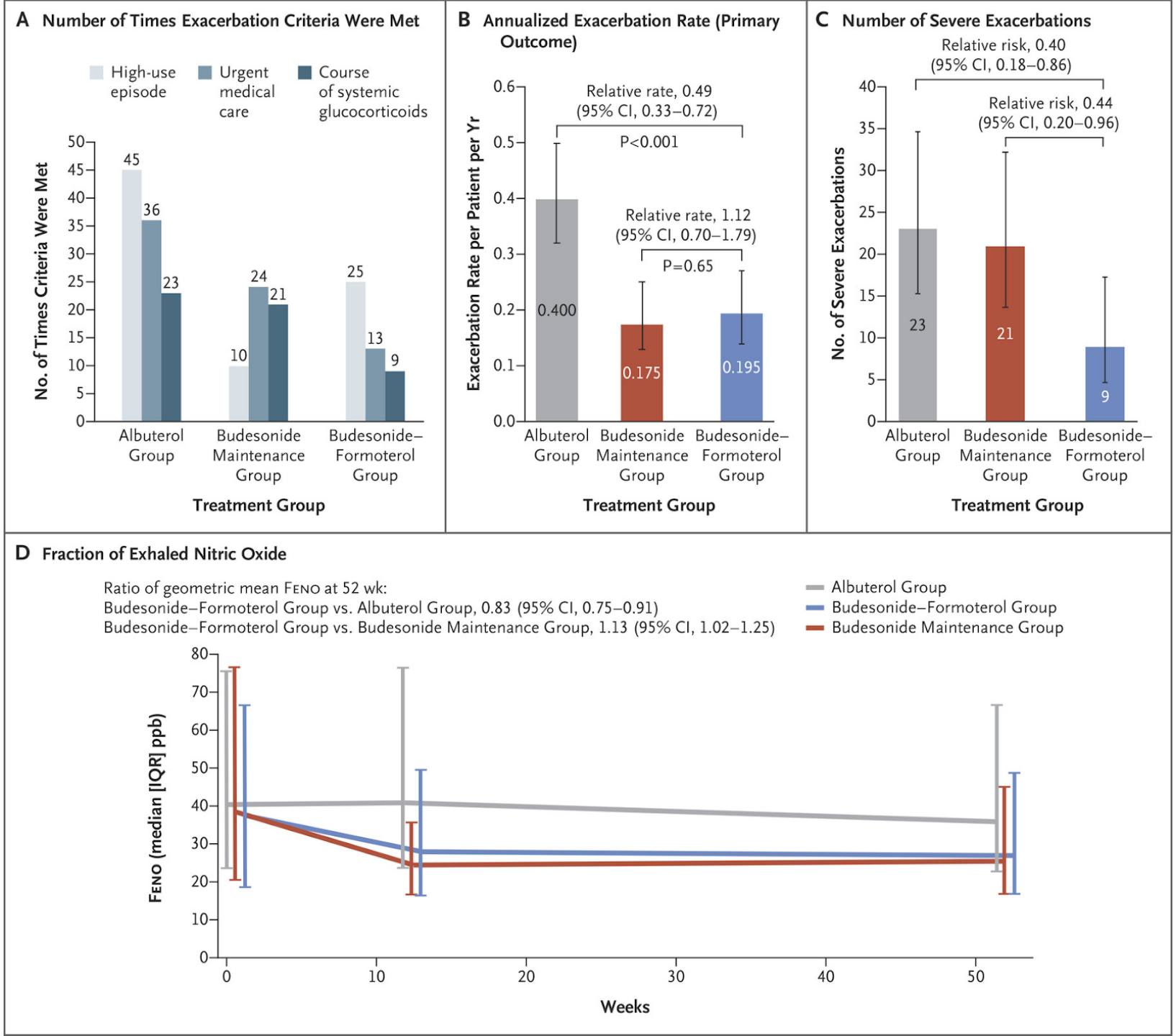
- Recent studies have shown that low-dose budesonide/formoterol PRN is as effective as regular ICS/LABA in mild asthma and associated with less steroid exposure
  - Significantly less severe exacerbations than both SABA alone and regular ICS
  - Reduction of all kinds of exacerbations
  - Increased time to first exacerbation
  - No change in FEV1 but reduced FeNO
  - Non-significant improvement in QoL scores
  - No significant adverse events, lower cumulative ICS

ORIGINAL ARTICLE

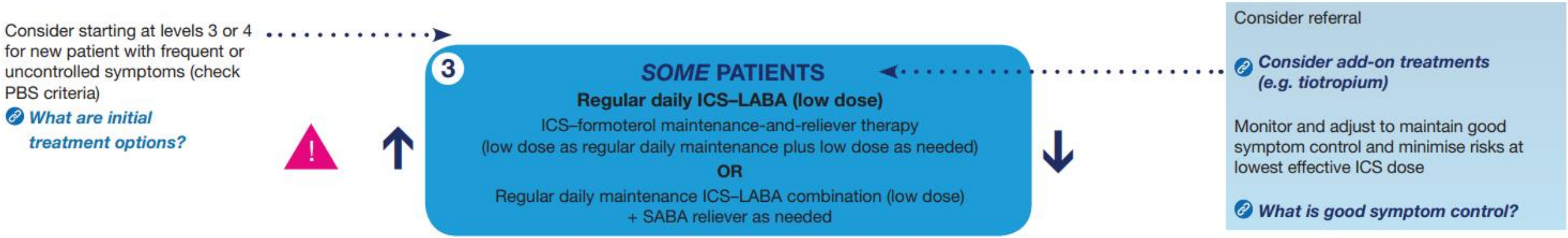
Controlled Trial of Budesonide–Formoterol as Needed for Mild Asthma

Richard Beasley, D.Sc., Mark Holliday, B.Sc., Helen K. Reddel, Ph.D., Irene Braithwaite, Ph.D., Stefan Ebmeier, B.M., B.Ch., Robert J. Hancox, M.D., Tim Harrison, M.D., Claire Houghton, B.M., B.S., Karen Oldfield, M.B., Ch.B., Alberto Papi, M.D., Ian D. Pavord, F.Med.Sci., Mathew Williams, Dip.Ex.Sci., and Mark Weatherall, F.R.A.C.P., for the Novel START Study Team*

N Engl J Med 2019; 380:2020-2030

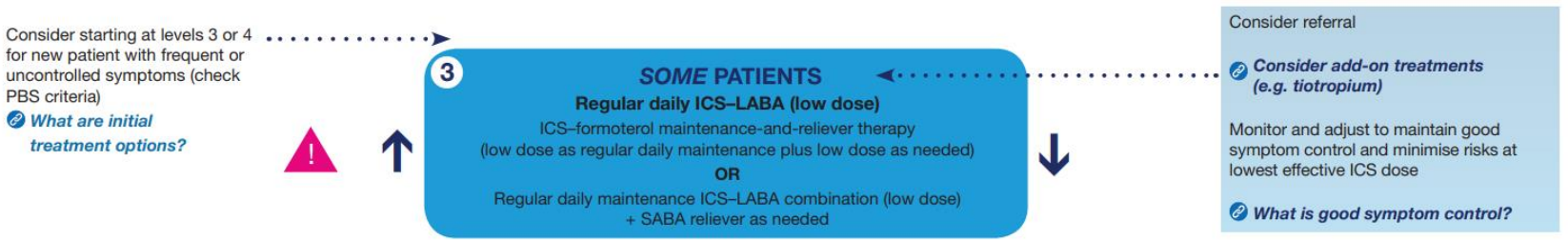

A Number of Times Exacerbation Criteria Were Met
High-use episode
Urgent medical care
Course of systemic glucocorticoids
No. of Times Criteria Were Met
45
36
23
10
24
21
25
13
9
Albuterol Group
Budesonide Maintenance Group
Budesonide–Formoterol Group
Treatment Group
B Annualized Exacerbation Rate (Primary Outcome)
Exacerbation Rate per Patient per Yr
Relative rate, 0.49 (95% CI, 0.33–0.72)
P<0.001
Relative rate, 1.12 (95% CI, 0.70–1.79)
P=0.65
0.400
0.175
0.195
Albuterol Group
Budesonide Maintenance Group
Budesonide–Formoterol Group
Treatment Group
C Number of Severe Exacerbations
Relative risk, 0.40 (95% CI, 0.18–0.86)
Relative risk, 0.44 (95% CI, 0.20–0.96)
No. of Severe Exacerbations
23
21
9
Albuterol Group
Budesonide Maintenance Group
Budesonide–Formoterol Group
Treatment Group
D Fraction of Exhaled Nitric Oxide
Ratio of geometric mean FENO at 52 wk:
Budesonide–Formoterol Group vs. Albuterol Group, 0.83 (95% CI, 0.75–0.91)
Budesonide–Formoterol Group vs. Budesonide Maintenance Group, 1.13 (95% CI, 1.02–1.25)
Albuterol Group
Budesonide–Formoterol Group
Budesonide Maintenance Group
FENO (median [IQR] ppb)
Weeks

Step 3



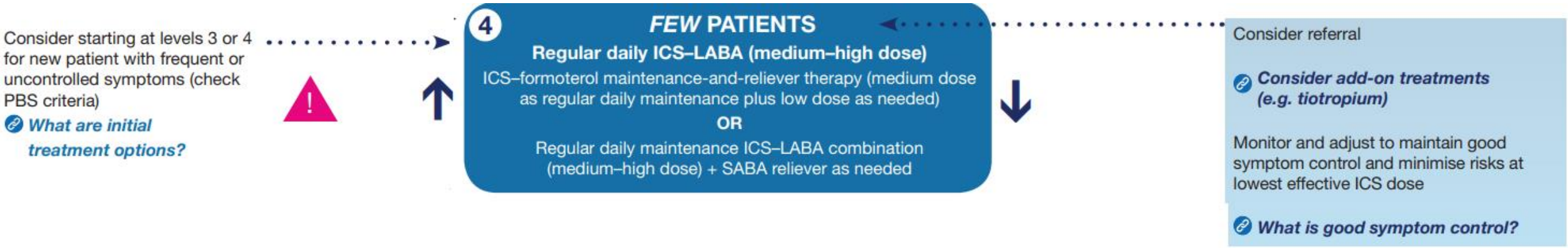
- Largely for patients with more frequent symptoms
- Symptoms most days and nocturnal symptoms >1/week
- Options include traditional ICS/LABA with PRN SABA or SMART
- SMART possibly reduces rate of severe exacerbations compared with regular ICS/LABA with PRN SABA without significant difference in day-to-day symptom control

Step 3



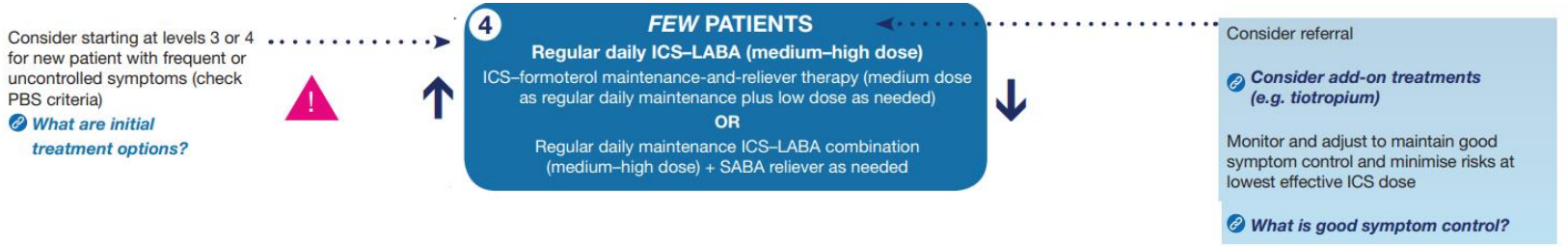
- Single maintenance and reliever therapy (SMART)
  - Formoterol is a quick acting LABA and must form part of SMART action plan
  - Options in Australia include budesonide-formoterol (Symbicort, Duo Resp Spiromax) and beclomethasone-formoterol (Fostair)
- Fostair = 100/6 microg
  - 1 puff bd + 1 puff PRN to a max of 6 additional puffs
- Symbicort/Duo Resp – can only use SMART for the 100/3 Rapihaler and 200/6 Turbuhaler for PBS reasons
  - 1 puff bd of chosen strength (100/3 or 200/6) and up to a maximum total daily dose of 2400/72 microg)
- Written action plan recommended

Step 4



- Patients with significant symptoms
  - Regular nocturnal symptoms
  - Recurrent exacerbations
  - First presentation with significant exacerbation
  - Often poor lung function (FEV1)
- Often hard to differentiate “severe” asthma from “poorly-controlled” asthma

Step 4



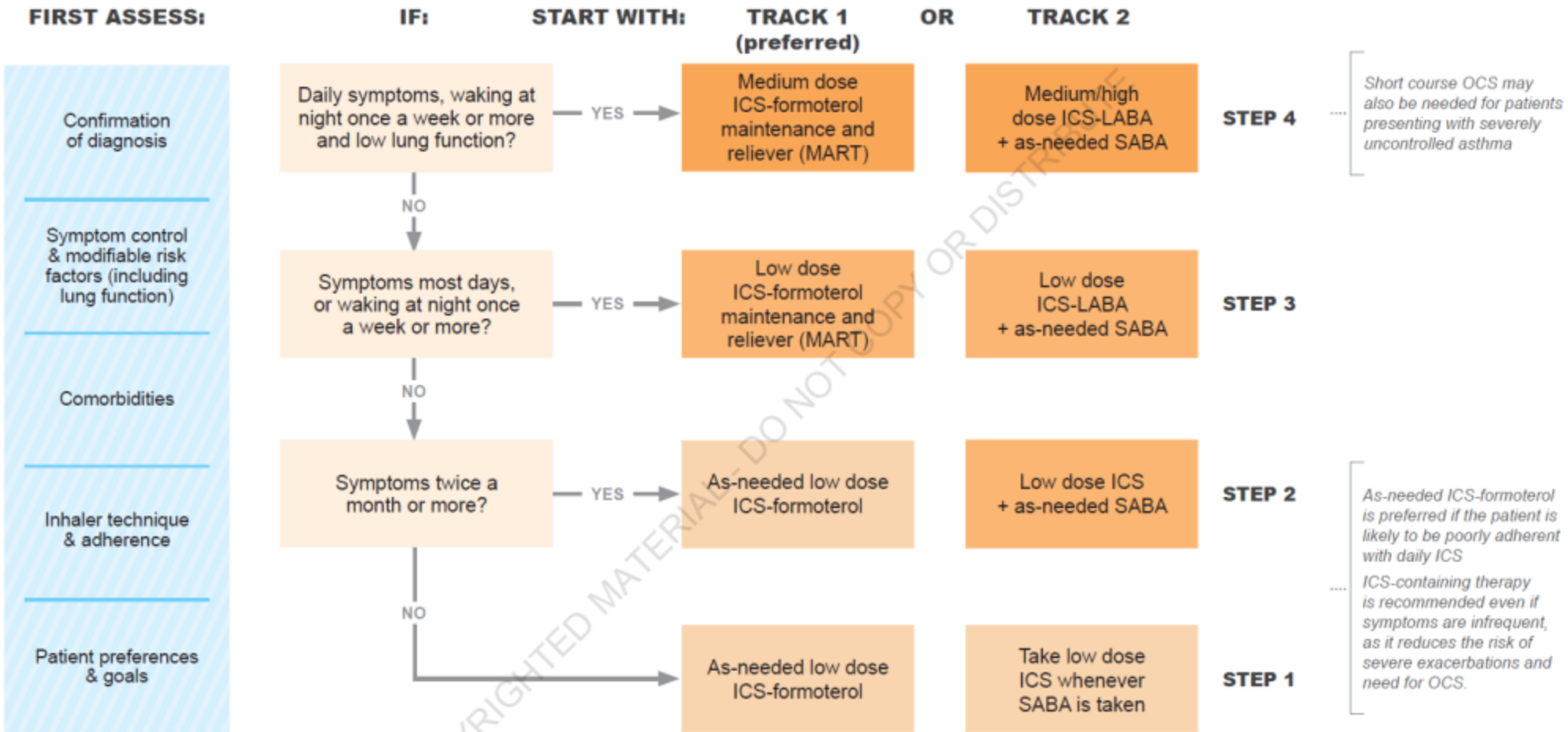
- Can still use SMART (higher dose – Symbicort 200/6 1 or 2 puffs bd) – however most patients will require higher regular dose than currently recommended for SMART
- ICS/LABA of choice
  - May require short course of oral corticosteroids
- Consider addition of LAMA (Spiriva Respimat) if not well controlled

Step 4 - LAMAs

- Cochrane review showed that addition of LAMA resulted in
  - Less exacerbations
  - Improved FEV1 (by 140ml)
  - More beneficial when added to ICS alone when compared to addition to ICS/LABA therapy but probably still beneficial
- Probably beneficial in fixed airways obstruction
  - Likely better than increasing dose of ICS
- No real change to QoL data
- Minimal adverse events
- Data only available for Tiotropium (Respimat device), not other LAMAs (although assume class effect)
  - PBS only reimburse Spiriva Respimat for “severe asthma” – if want/need to use other LAMA indication is COPD

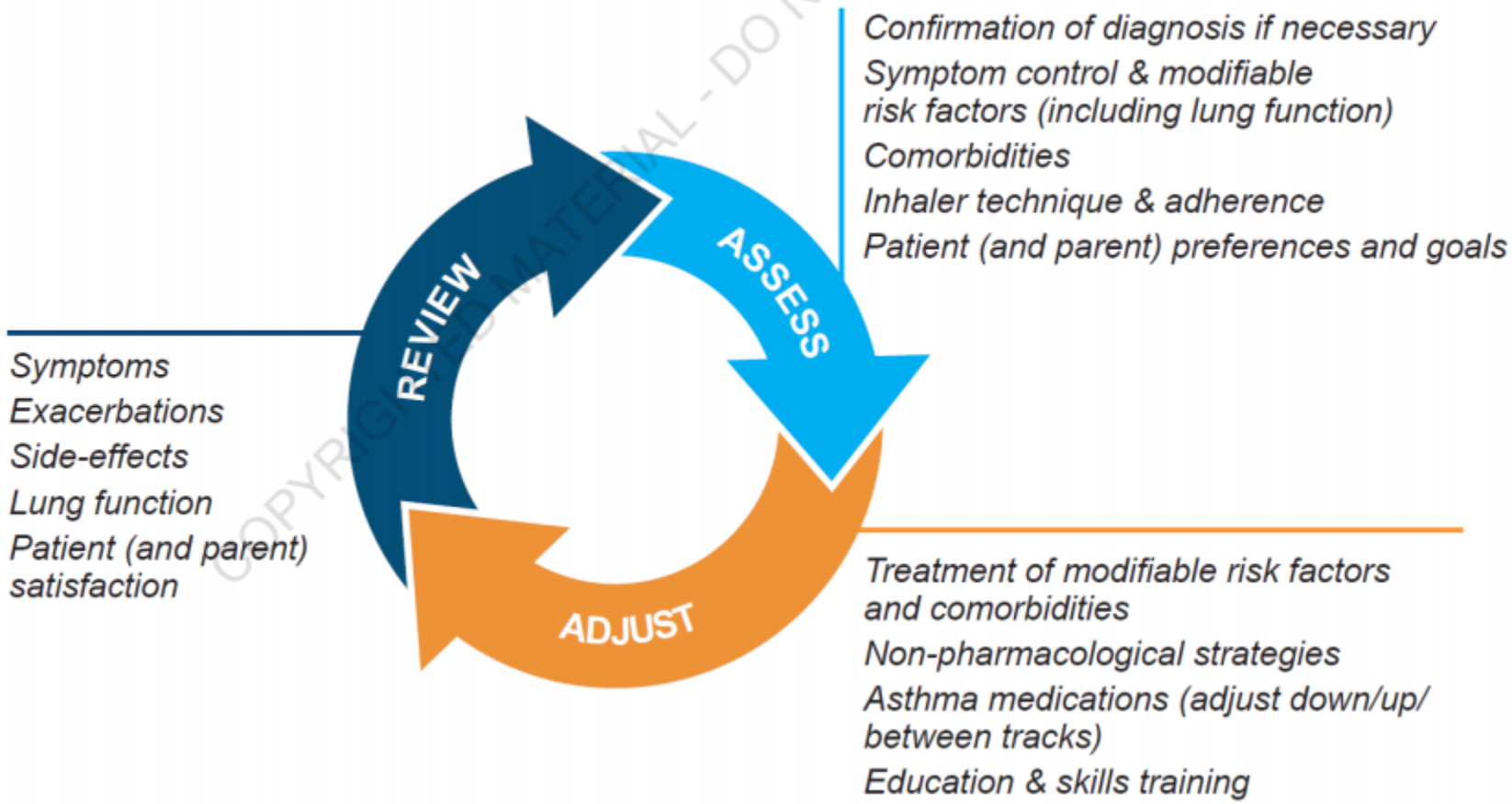
STARTING TREATMENT

in adults and adolescents 12+ years with a diagnosis of asthma



ICS: inhaled corticosteroid; LABA: long-acting beta$_2$-agonist; MART: maintenance and reliever therapy with ICS-formoterol; OCS: oral corticosteroids; SABA: short-acting beta$_2$-agonist

Box 3-2. The asthma management cycle for personalized asthma care



What Inhaler to Choose?

- If using SMART – needs to have formoterol
  - Symbicort
  - Fostair
  - (Flutiform not approved)
- If concern about adherence and need regular ICS
  - Breo (only once daily device) – be aware of two strengths of ICS (same LABA dose)
- Otherwise – prescriber and patient preference (device, cost, familiarity etc)

Step 5

- Long term (low-dose) steroids
- Biological therapy (anti-IgE, anti-IL5, anti-IL4)
  - Omalizumab (anti-IgE)
  - Benralizumab (anti-IL5R)
  - Mepolizumab (anti-IL5)
  - Dupilumab (anti-IL4R) – just been PBS approved for asthma
  - Improve severe exacerbations, reduces need for oral corticosteroids
  - No clear evidence it improves lung function or asthma-related QoL
  - No real evidence of significant side effects
    - 1% hypersensitivity (omalizumab), <0.1% anaphylaxis
    - No evidence of increased parasitic infection (recommend Strongyloides serology pre)

ACQ-5

Table 1. Asthma Control Questionnaire, 5-item version (ACQ 5)[14,15]

Circle the number of the response that best describes how you have been during the past week

1. On average, during the past week, how often were you woken by your asthma during the night?

0. Never
1. Hardly ever
2. A few times
3. Several times
4. Many times
5. A great many times
6. Unable to sleep because of asthma

2. On average, during the past week, how bad were your asthma symptoms when you woke up in the morning?

0. No symptoms
1. Very mild symptoms
2. Mild symptoms
3. Moderate symptoms
4. Quite severe symptoms
5. Severe symptoms
6. Very severe symptoms

3. In general, during the past week, how limited were you in your activities because of your asthma?

0. Not limited at all
1. Very slightly limited
2. Slightly limited
3. Moderately limited
4. Very limited
5. Extremely limited
6. Totally limited

4. In general, during the past week, how much shortness of breath did you experience because of your asthma?

0. None
1. Very little
2. A little
3. A moderate amount
4. Quite a lot
5. A great deal
6. A very great deal

5. In general, during the past week, how much of the time did you wheeze?

0. Not at all
1. Hardly any of the time
2. A little of the time
3. A moderate amount of the time
4. A lot of the time
5. Most of the time
6. All the time

Step 5

- Macrolides
- Lots of other possible treatments in research stage
  - ?able to target non-atopic/eosinophilic patients
- (Bronchial thermoplasty)
  - Indications
    - Poorly controlled asthma
    - Non-smoker for at least 1 year
    - FEV1 of >60%
    - No previous life threatening exacerbations
  - Jury largely out
    - High rates of severe exacerbations due to therapy
    - Seems to reduce exacerbations in long term but no real change to FEV1
    - Trials have poor generalisability
    - Not recommended in latest ERS/ATS guidelines

When to refer

- Anyone you are concerned about
- Anyone with difficult to control asthma
- Anyone with reduced lung function
- What do we want to help triage:
  - Adherence
  - Use of oral corticosteroids in previous 12 months (ideally doses and duration if possible – needed for PBS application for biologic therapy)
  - Previous lung function
  - Serious exacerbations needing hospitalization (particularly ICU)
  - Ideally if previous evidence of eosinophilia or atopy

COVID-19 and asthma

- People with asthma are not at increased risk of acquiring COVID-19
  - Systematic reviews have not shown an increased risk of COVID-19 in people with asthma
  - Handwashing, masks and social/physical distancing have reduced the incidence of other respiratory infections, including influenza, in 2020
  - As a result, many countries are seeing a reduction in asthma and COPD exacerbations
- A large study found that, overall, people with asthma are not at increased risk of COVID-19-related death *(Williamson, Nature 2020)*
  - However, the risk of COVID-19 death was increased for people who had recently needed oral corticosteroids for their asthma *(Williamson, Nature 2020)*
  - Therefore, it is important to continue good asthma management (as described in the GINA report), with strategies to maintain good symptom control, reduce the risk of severe exacerbations and minimise the need for oral corticosteroids

Questions?

Thank you

Take home messages

- SABA alone is not recommended in the majority of cases
- Early use of ICS
  - Use lowest dose possible
- Ensure good adherence (regular checks)
- LAMAs likely useful in difficult to control asthma
- Refer for add-on treatment if poor control or high number of exacerbations

Resources

- https://www.asthmahandbook.org.au/
- https://www.nationalasthma.org.au/ - has how to videos
- https://asthma.org.au/
- https://www.severeasthma.org.au/
- https://ginasthma.org/
- https://erj.ersjournals.com/content/55/1/1900588 - ERS/ATS severe asthma guidelines
- https://onlinelibrary.wiley.com/doi/full/10.1111/resp.13951 - TSANZ guidelines on work-related asthma

Presenters

- **Dr Ben Johnson** – Registrar, Respiratory Medicine, Royal Hobart Hospital
- **Lyn Reid** – Clinical Nurse Consultant, Royal Hobart Hospital

Asthma
Inhalers and Asthma Action Plans

LYNETTE REID

RESPIRATORY CLINICAL NURSE CONSULTANT

ROYAL HOBART HOSPITAL

No conflicts of interest to declare

Severe Asthma Toolkit… Self-Management Skills

Assess the Comorbitities

- Upper Airway Dysfunction
- Anxiety & Depression
- CVD
- Obstructive Sleep Apnoea
- Osteoporosis
- GORD

Assess for Risk Factors & Self-Management Skills

- Obesity
- Adherence
- Poor Nutrition
- Inhaler Technique
- Activity Level
- Smoking

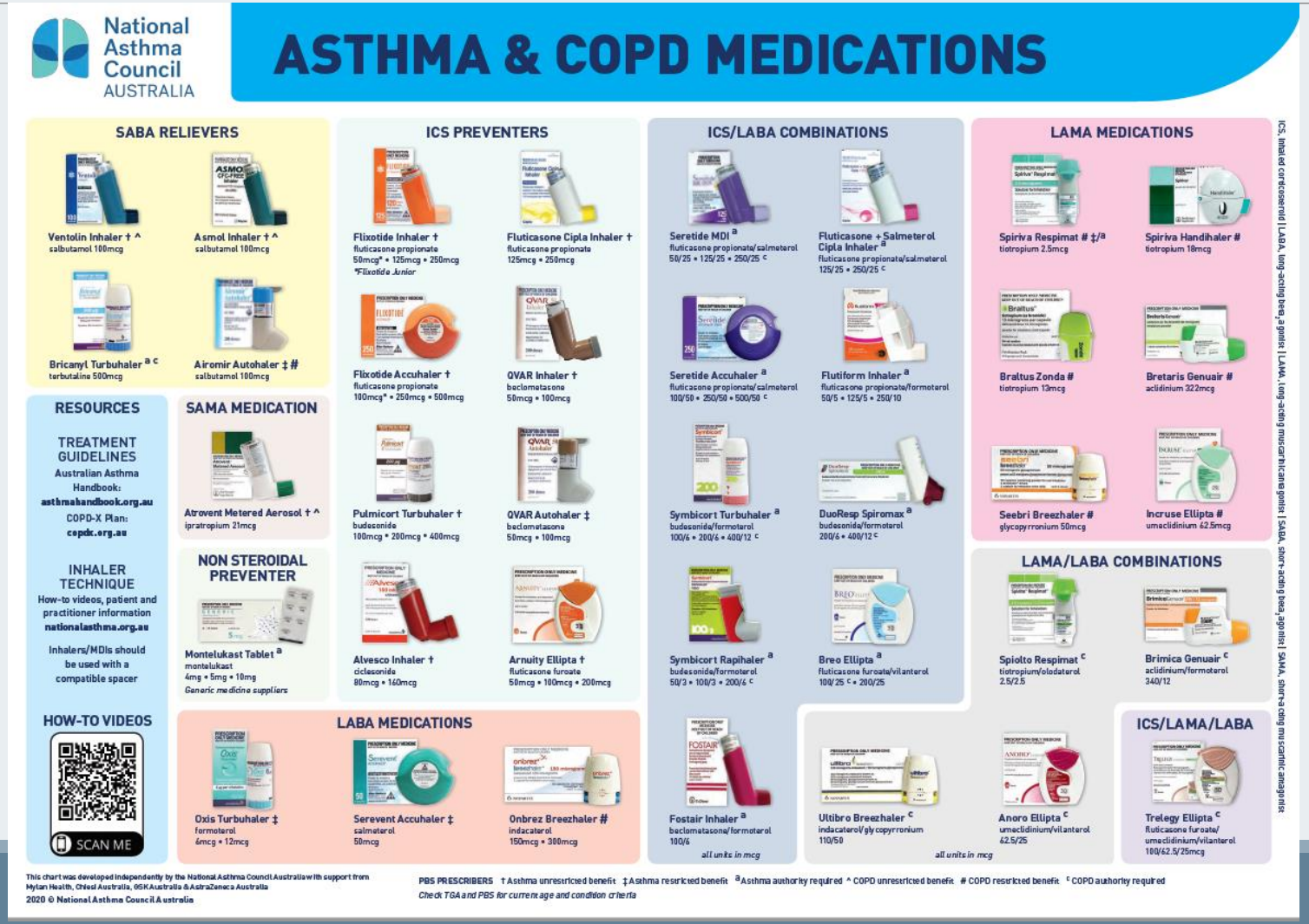
Assess the Airway Domain

- Confirm Diagnosis
- Assess Airway Inflammation
- Phenotype for Add-on Therapy

Inhalers are the cornerstone of treatment in asthma

- Correct inhalation technique is necessary for attaining the full benefit of inhaled medications. However inhalers are often used incorrectly unless patients receive adequate instruction
- The CRITical Inhaler mistaKes and Asthma controL (CRITIKAL) study, highlighted the association between poor inhaler technique and poor health outcomes.
- Sub-optimal treatment adherence is associated with a 50% increased risk of hospitalisation, increased emergency department visits and increased use of oral corticosteroids.
- Australian research studies have reported incorrect inhaler technique or poor adherence in up to 90% of patients

A bewildering and ever-increasing array of inhalers for asthma and COPD

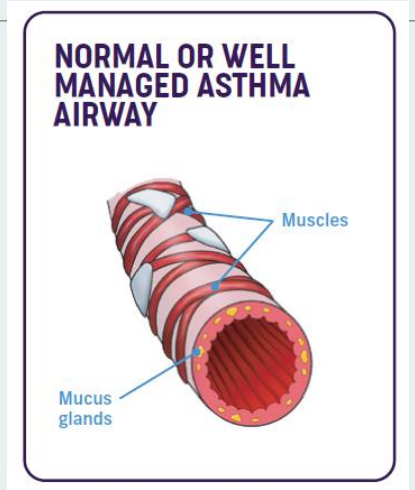


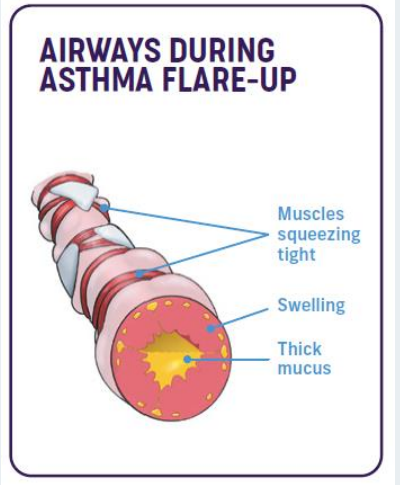
Asthma support for patients in the community setting

- Pharmacies – should ideally check technique but this does not always happen
- Changes to asthma support for Tasmanian patients over the past few years (previously the Asthma Foundation of Tasmania)
- Asthma Australia (AA) is the consumer peak body for asthma in Australia (and for Tasmania). Telephone: 1800 278 462
- The Asthma Australia COACH Program® – telephone service aiming to help people with asthma improve their general health and asthma control. Available via referral for patients aged 12 years and older with a confirmed asthma diagnosis https://asthma.org.au/what-we-do/how-we-can-help/coach/

Optimising asthma self-management… General asthma awareness

- Better asthma awareness can lead to improved adherence with inhalers and lifestyle choices
- Does your patient know what asthma is and how it can affect them? Factor in health literacy and different learning styles
- National Asthma Council and Asthma Australia- written and audio-visual resources for patients and HCPs





Source: Asthma Australia, *Know Your Options*

Asthma Inhalers (currently)

SABA RELIEVERS

Ventolin Inhaler † ^
salbutamol 100mcg

Asmol Inhaler † ^
salbutamol 100mcg

Bricanyl Turbuhaler [a] [c]
terbutaline 500mcg

Airomir Autohaler ‡ #
salbutamol 100mcg

ICS PREVENTERS

Flixotide Inhaler †
fluticasone propionate
50mcg* • 125mcg • 250mcg
*Flixotide Junior

Fluticasone Cipla Inhaler
fluticasone propionate
125mcg • 250mcg

Flixotide Accuhaler †
fluticasone propionate
100mcg* • 250mcg • 500mcg

QVAR Inhaler †
beclometasone
50mcg • 100mcg

Pulmicort Turbuhaler †
budesonide
100mcg • 200mcg • 400mcg

QVAR Autohaler ‡
beclometasone
50mcg • 100mcg

Alvesco Inhaler †
ciclesonide
80mcg • 160mcg

Arnuity Ellipta †
fluticasone furoate
50mcg • 100mcg • 200mcg

ICS/LABA COMBINATIONS

Seretide MDI [a]
fluticasone propionate/salmeterol
50/25 • 125/25 • 250/25 [c]

Fluticasone + Salmeterol Cipla Inhaler [a]
fluticasone propionate/salmeterol
125/25 • 250/25 [c]

Seretide Accuhaler [a]
fluticasone propionate/salmeterol
100/50 • 250/50 • 500/50 [c]

Flutiform Inhaler [a]
fluticasone propionate/formoterol
50/5 • 125/5 • 250/10

Symbicort Turbuhaler [a]
budesonide/formoterol
100/6 • 200/6 • 400/12 [c]

DuoResp Spiromax [a]
budesonide/formoterol
200/6 • 400/12 [c]

Symbicort Rapihaler [a]
budesonide/formoterol
50/3 • 100/3 • 200/6 [c]

Breo Ellipta [a]
fluticasone furoate/vilanterol
100/25 [c] • 200/25

Fostair Inhaler [a]
beclometasone/formoterol
100/6

all units in mcg

LAMA MEDICATIONS

Spiriva Respimat # ‡/[a]
tiotropium 2.5mcg

Adherence to asthma treatment

- Try to get the basics of inhaler technique/adherence right before escalating to oral corticosteroids and/or biological agents
- Need to identify suboptimal adherence, e.g. “how many days a week did you take your inhaler last week”, “how many times a day do you take your inhaler”
- Understand the barriers to adherence and reasons for their behaviour
- Both economic considerations and inhaler training shown to affect adherence
- Inhaler devices vary in how they are used and how they dispense the medication. Patient preference can influence adherence

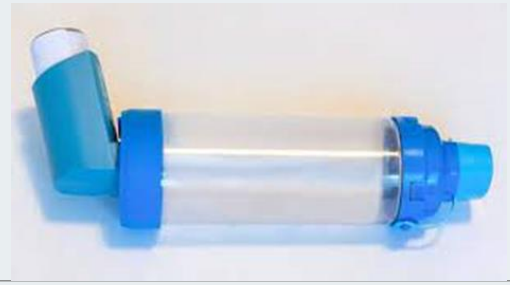
Promoting adherence

- Accommodation of the patient's preferences and ability to manage the selected device
- Education of dosing regimen and importance of regular preventer use
- Reminder strategies, e.g. keeping their preventer on the bedside table (or other cool, dry place)
- Mobile phone reminders
- Electronic alerts attached to inhalers
- Support and reinforcement from the multi-disciplinary team, e.g. practice nurses, pharmacists
- Engagement of family members

Inhaler device considerations (asthma & COPD)

- Each type of inhaler requires a particular inhalation technique. Factors to consider include the inspiratory effort, cognitive capacity and functional ability of the patient
- Variation in how the inhaler dispenses the medication, e.g. passively or actively generated, pressurised metered dose inhalers, use of a spacer, dry powder inhalers, breath-actuated, soft mist?
- Characteristics affecting optimal drug delivery, e.g. inhalation flow rate, inhalation volume and aerosol particle size
- Aerosol particle size plays an important role in targeting the drug to the appropriate lung region rather that deposition in the oropharynx

pMDI and spacers



- Spacers can be added to a pMDI to overcome problems with coordination and timing, and to increase aerosol delivery to the peripheral airways
- Reduces the risk of local adverse effects of inhaled corticosteroids, e.g. candidiasis & dysphonia
- Disadvantages include potential accumulation of electrostatic charge that can affect drug delivery
- Spacers should be washed in clean, warm dishwashing water every 2 – 4 weeks and left to air dry
- Examples of pMDIs:

Flixotide Inhaler †
fluticasone propionate
50mcg* • 125mcg • 250mcg
*Flixotide Junior

Seretide MDI [a]
fluticasone propionate/salmeterol
50/25 • 125/25 • 250/25 [c]

Fluticasone + Salmeterol Cipla Inhaler [a]
fluticasone propionate/salmeterol
125/25 • 250/25 [c]

Symbicort Rapihaler [a]
budesonide/formoterol
50/3 • 100/3 • 200/6 [c]

Fostair Inhaler [a]
beclometasone/formoterol
100/6

Alvesco Inhaler †
ciclesonide
80mcg • 160mcg

Haleraid® (for use with an MDI)

- If a patient has trouble actuating the device, e.g. if they have weak or arthritic hands, they may benefit from the use of a Haleraid®
- They can be obtained from some pharmacies, Independent Living Centres Australia or online from Asthma Australia ($12.00)

Dry Powder Inhalers (DPIs)

DPIs require a pre-inhalation dose-loading step to be completed for them to function correctly

DPIs are breath-actuated and require the user to inhale rapidly and forcibly in order to generate a turbulent flow to de-aggregate the drug particles within. A breath-hold is then required

Examples:

Symbicort® Turbuhaler®
budesonide/formoterol

Breo® Ellipta®
fluticasone furoate/ vilanterol

Flixotide® Accuhaler®
fluticasone propionate

DuoResp® Spiromax®
budesonide/formoterol

Soft Mist Inhalers (SMI)

- SMIs atomise the drug-containing droplets and deliver them as a slower-velocity fine mist
- Patients require coordination with loading the dose, actuation and inhalation. Education is important for effective and optimal use (inhale slowly and steadily)
- The Respimat® is currently the only commercially available SMI
- Tiotropium has been shown to be safe and effective in people with severe asthma when added to high doses of ICS plus LABA. It is the only LAMA licensed for use in asthma

Common errors associated with different device types (the CRITIKAL study) (#1)

- Using expired, broken or empty devices
- Incorrect loading of devices, e.g. held in the incorrect position, not removing cap/cover fully. Specific examples:
  - Turbuhaler® (e.g. Symbicort®) – should be loaded upright, and base twisted correctly, don't shake
  - Accuhaler® (e.g. Seretide®) – load horizontally with cover fully open, don't shake
  - Spiromax® (DuoResp®) should be held upright, don't shake
- Not shaking pressurised metered-dose inhalers (pMDI's) – required for suspension
- Not using a spacer with pMDIs resulting in increased deposition of the medication in the oropharynx

Common errors associated with inhalation (the CRITIKAL study) (#2)

- Poor mouth seal
- Failure to exhale before inhalation
- Not having the head tilted with chin up during inhalation
- Poor coordination of actuation and inhalation
- Inhaling through the nose instead of the mouth
- Exhaling into the device rather than inhaling
- Insufficient inspiratory effort
- Insufficient breath-hold after inhalation

Generic inhaled medications

- There is increasing development and availability of generic inhaled medicines
- Generic inhaled drugs have the same chemical structure and bioequivalence as with the original branded option but may differ in their formulation
- Generics are delivered by devices that can vary markedly in design, drug delivery and method of operation from devices of the original brand
- A pharmacist may dispense a brand of inhaler different to that which the patient is accustomed to and sometimes without consultation with the prescriber or the patient
- Additional concerns arise if the patient goes on to use the inhaler incorrectly

Written Asthma Action Plans (AAP)

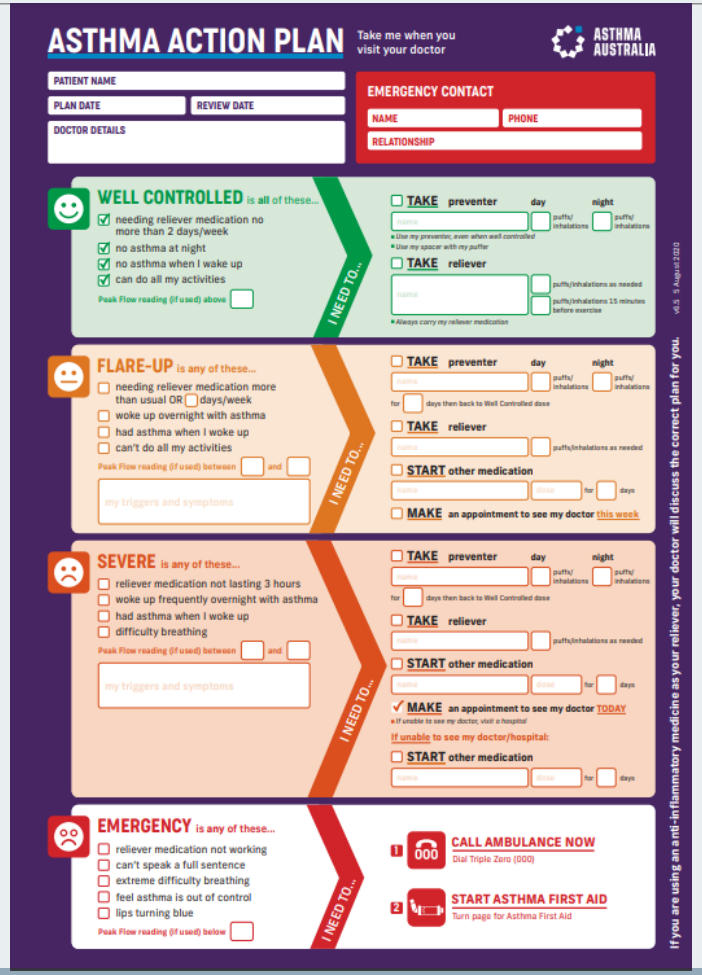
- Personalised AAP show patients how to make short term changes to their treatment in response to changes in their symptoms and/or personalised peak expiratory flow (PEF)
- This includes adjustment of preventer/ reliever medication and when/how to start oral corticosteroids (dose, duration)
- They also describe how and when to access medical care, including actions to take when medical assistance is required urgently

General principles

- Reinforce the importance of taking their preventer as directed, ensuring the patient understands the need to reduce airway inflammation
- Beware of readily accessible over-the counter salbutamol
- Note that studies have demonstrated a disconnect between patient understanding of asthma control, symptom recognition, pharmacotherapy and self-management
- Ensure the patient understands their AAP instructions. Consider health literacy

A range of AAP approaches

A range of AAP approaches



ASTHMA ACTION PLAN

Take me when you visit your doctor

ASTHMA AUSTRALIA

PATIENT NAME

PLAN DATE | REVIEW DATE

DOCTOR DETAILS

EMERGENCY CONTACT

NAME | PHONE

RELATIONSHIP

WELL CONTROLLED is all of these...

- needing reliever medication no more than 2 days/week
- no asthma at night
- no asthma when I wake up
- can do all my activities

Peak Flow reading (if used) above

I NEED TO...

TAKE preventer day night

TAKE reliever

FLARE-UP is any of these...

- needing reliever medication more than usual OR days/week
- woke up overnight with asthma
- had asthma when I woke up
- can't do all my activities

Peak Flow reading (if used) between and

my triggers and symptoms

I NEED TO...

TAKE preventer day night

for days then back to Well Controlled dose

TAKE reliever

START other medication

MAKE an appointment to see my doctor this week

SEVERE is any of these...

- reliever medication not lasting 3 hours
- woke up frequently overnight with asthma
- had asthma when I woke up
- difficulty breathing

Peak Flow reading (if used) between and

my triggers and symptoms

I NEED TO...

TAKE preventer day night

for days then back to Well Controlled dose

TAKE reliever

START other medication

MAKE an appointment to see my doctor TODAY

If unable to see my doctor, visit a hospital

If unable to see my doctor/hospital:

START other medication

EMERGENCY is any of these...

- reliever medication not working
- can't speak a full sentence
- extreme difficulty breathing
- feel asthma is out of control
- lips turning blue

Peak Flow reading (if used) below

I NEED TO...

1 000 CALL AMBULANCE NOW

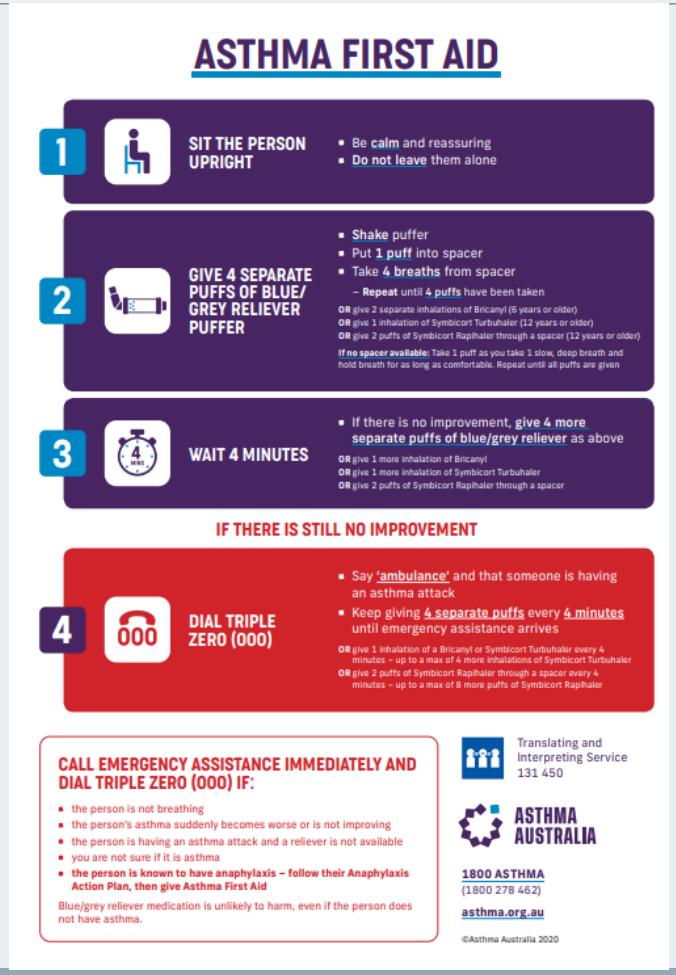
Dial Triple Zero (000)

2 START ASTHMA FIRST AID

Turn page for Asthma First Aid

If you are using an anti-inflammatory medicine as your reliever, your doctor will discuss the correct plan for you.

v6.5 © August 2020



ASTHMA FIRST AID

1 SIT THE PERSON UPRIGHT

- Be calm and reassuring
- Do not leave them alone

2 GIVE 4 SEPARATE PUFFS OF BLUE/ GREY RELIEVER PUFFER

- Shake puffer
- Put 1 puff into spacer
- Take 4 breaths from spacer
  - Repeat until 4 puffs have been taken

OR give 2 separate inhalations of Bricanyl (6 years or older)
OR give 1 inhalation of Symbicort Turbuhaler (12 years or older)
OR give 2 puffs of Symbicort Rapihaler through a spacer (12 years or older)

If no spacer available: Take 1 puff as you take 1 slow, deep breath and hold breath for as long as comfortable. Repeat until all puffs are given

3 WAIT 4 MINUTES

- If there is no improvement, give 4 more separate puffs of blue/grey reliever as above

OR give 1 more inhalation of Bricanyl
OR give 1 more inhalation of Symbicort Turbuhaler
OR give 2 puffs of Symbicort Rapihaler through a spacer

IF THERE IS STILL NO IMPROVEMENT

4 000 DIAL TRIPLE ZERO (000)

- Say 'ambulance' and that someone is having an asthma attack
- Keep giving 4 separate puffs every 4 minutes until emergency assistance arrives

OR give 1 inhalation of a Bricanyl or Symbicort Turbuhaler every 4 minutes – up to a max of 4 more inhalations of Symbicort Turbuhaler
OR give 2 puffs of Symbicort Rapihaler through a spacer every 4 minutes – up to a max of 8 more puffs of Symbicort Rapihaler

CALL EMERGENCY ASSISTANCE IMMEDIATELY AND DIAL TRIPLE ZERO (000) IF:

- the person is not breathing
- the person's asthma suddenly becomes worse or is not improving
- the person is having an asthma attack and a reliever is not available
- you are not sure if it is asthma
- **the person is known to have anaphylaxis – follow their Anaphylaxis Action Plan, then give Asthma First Aid**

Blue/grey reliever medication is unlikely to harm, even if the person does not have asthma.

Translating and Interpreting Service 131 450

ASTHMA AUSTRALIA

1800 ASTHMA (1800 278 462)

asthma.org.au

A range of AAP approaches
Dual purpose preventer/reliever – ICS/LABA


My Symbicort (budesonide/formoterol) Rapihaler 100/3 Asthma Action Plan

Anti-inflammatory Reliever With or without Maintenance

Name:

Date:

Plan discussed with: (name of health care professional)

My usual best peak flow (if used): _____ l/min

National Asthma Council AUSTRALIA

Usual Medical Contact: Name and telephone number

NORMAL MODE

MY SYMBICORT ASTHMA TREATMENT IS:

- ☐ Symbicort Rapihaler 100/3 mcg
- ☐ Use with a spacer

RELIEVER

I should take 2 separate puffs (1 at a time) of my Symbicort whenever needed for relief of my asthma symptoms

I should always carry my Symbicort with me to use as a reliever when needed

MY REGULAR MAINTENANCE TREATMENT EVERY DAY IS : (enter number of puffs or 0 if no regular daily treatment prescribed)

_____ Puffs in the morning (0, 2, 4)

_____ Puffs in the evening (0, 2, 4)

MY ASTHMA IS STABLE IF:

- I do not wake up at night or in the morning because of asthma
- My asthma has not interfered with my usual activities (e.g housework, school, exercise)

OTHER INSTRUCTIONS (e.g. what to do before exercise, when to see my doctor)

ASTHMA FLARE UP

IF OVER A PERIOD OF 2–3 DAYS:

- My asthma symptoms are getting worse or not improving OR
- I am using more than to 12 Symbicort reliever puffs a day OR
- Peak flow below: _____ (delete if not used)

I SHOULD:

- ✓ Continue to use my Symbicort to relieve my symptoms and my regular daily Symbicort (if prescribed) (up to a total maximum of 24 puffs in a day)
- ☐ Contact my doctor
- ☐ Start a course of prednisolone

COURSE OF PREDNISOLONE TABLETS:

Take _____ mg prednisolone tablets each morning for _____ days; OR

IF I NEED MORE THAN 24 SYMBICORT PUFFS (TOTAL) IN ANY DAY,

- I must see my doctor or go to hospital the same day

ASTHMA EMERGENCY

SIGNS OF AN ASTHMA EMERGENCY

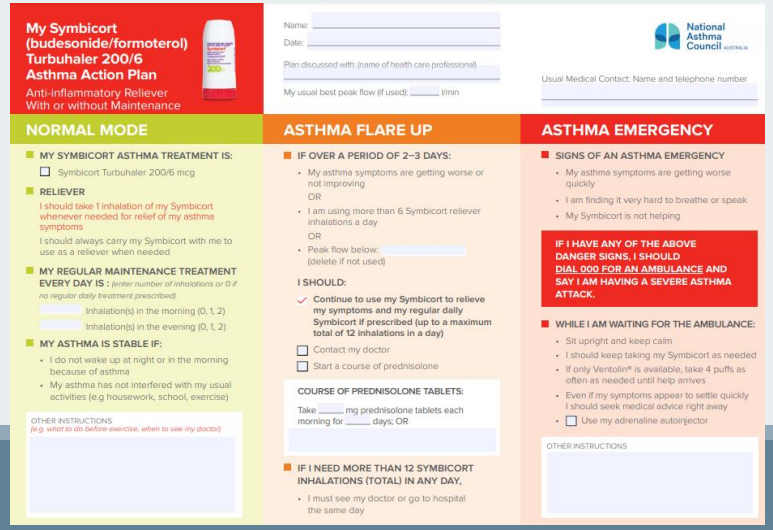
- My asthma symptoms are getting worse quickly
- I am finding it very hard to breathe or speak
- My Symbicort is not helping

IF I HAVE ANY OF THE ABOVE DANGER SIGNS, I SHOULD DIAL 000 FOR AN AMBULANCE AND SAY I AM HAVING A SEVERE ASTHMA ATTACK.

WHILE I AM WAITING FOR THE AMBULANCE:

- Sit upright and keep calm
- I should keep taking my Symbicort as needed
- If only Ventolin® is available, take 4 puffs as often as needed until help arrives
- Even if my symptoms appear to settle quickly I should seek medical advice right away
- ☐ Use my adrenaline autoinjector

OTHER INSTRUCTIONS


My Symbicort (budesonide/formoterol) Turbuhaler 200/6 Asthma Action Plan

Anti-inflammatory Reliever With or without Maintenance

Name:

Date:

Plan discussed with: (name of health care professional)

My usual best peak flow (if used): _____ l/min

National Asthma Council AUSTRALIA

Usual Medical Contact: Name and telephone number

NORMAL MODE

MY SYMBICORT ASTHMA TREATMENT IS:

- ☐ Symbicort Turbuhaler 200/6 mcg

RELIEVER

I should take 1 inhalation of my Symbicort whenever needed for relief of my asthma symptoms

I should always carry my Symbicort with me to use as a reliever when needed

MY REGULAR MAINTENANCE TREATMENT EVERY DAY IS : (enter number of inhalations or 0 if no regular daily treatment prescribed)

_____ Inhalation(s) in the morning (0, 1, 2)

_____ Inhalation(s) in the evening (0, 1, 2)

MY ASTHMA IS STABLE IF:

- I do not wake up at night or in the morning because of asthma
- My asthma has not interfered with my usual activities (e.g housework, school, exercise)

OTHER INSTRUCTIONS (e.g. what to do before exercise, when to see my doctor)

ASTHMA FLARE UP

IF OVER A PERIOD OF 2–3 DAYS:

- My asthma symptoms are getting worse or not improving OR
- I am using more than 6 Symbicort reliever inhalations a day OR
- Peak flow below: _____ (delete if not used)

I SHOULD:

- ✓ Continue to use my Symbicort to relieve my symptoms and my regular daily Symbicort if prescribed (up to a maximum total of 12 inhalations in a day)
- ☐ Contact my doctor
- ☐ Start a course of prednisolone

COURSE OF PREDNISOLONE TABLETS:

Take _____ mg prednisolone tablets each morning for _____ days; OR

IF I NEED MORE THAN 12 SYMBICORT INHALATIONS (TOTAL) IN ANY DAY,

- I must see my doctor or go to hospital the same day

ASTHMA EMERGENCY

SIGNS OF AN ASTHMA EMERGENCY

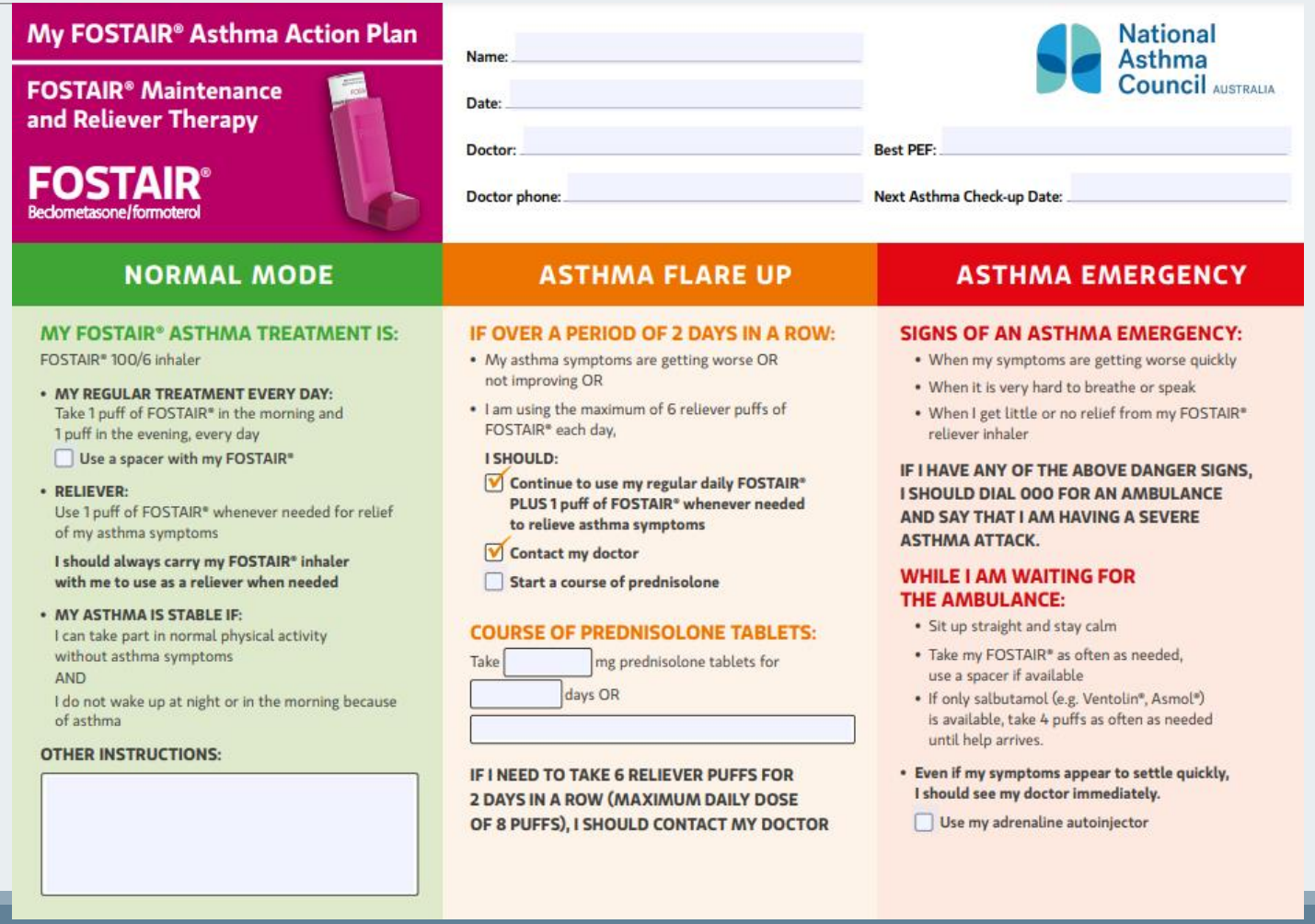
- My asthma symptoms are getting worse quickly
- I am finding it very hard to breathe or speak
- My Symbicort is not helping

IF I HAVE ANY OF THE ABOVE DANGER SIGNS, I SHOULD DIAL 000 FOR AN AMBULANCE AND SAY I AM HAVING A SEVERE ASTHMA ATTACK.

WHILE I AM WAITING FOR THE AMBULANCE:

- Sit upright and keep calm
- I should keep taking my Symbicort as needed
- If only Ventolin® is available, take 4 puffs as often as needed until help arrives
- Even if my symptoms appear to settle quickly I should seek medical advice right away
- ☐ Use my adrenaline autoinjector

OTHER INSTRUCTIONS


My FOSTAIR® Asthma Action Plan

FOSTAIR® Maintenance and Reliever Therapy

FOSTAIR®

Beclometasone/formoterol

Name:

Date:

Doctor:

Best PEF:

Doctor phone:

Next Asthma Check-up Date:

National Asthma Council AUSTRALIA

NORMAL MODE

MY FOSTAIR® ASTHMA TREATMENT IS:

FOSTAIR® 100/6 inhaler

- **MY REGULAR TREATMENT EVERY DAY:** Take 1 puff of FOSTAIR® in the morning and 1 puff in the evening, every day
  - ☐ Use a spacer with my FOSTAIR®
- **RELIEVER:** Use 1 puff of FOSTAIR® whenever needed for relief of my asthma symptoms

  I should always carry my FOSTAIR® inhaler with me to use as a reliever when needed
- **MY ASTHMA IS STABLE IF:** I can take part in normal physical activity without asthma symptoms AND I do not wake up at night or in the morning because of asthma

OTHER INSTRUCTIONS:

ASTHMA FLARE UP

IF OVER A PERIOD OF 2 DAYS IN A ROW:

- My asthma symptoms are getting worse OR not improving OR
- I am using the maximum of 6 reliever puffs of FOSTAIR® each day,

I SHOULD:

- ☑ Continue to use my regular daily FOSTAIR® PLUS 1 puff of FOSTAIR® whenever needed to relieve asthma symptoms
- ☑ Contact my doctor
- ☐ Start a course of prednisolone

COURSE OF PREDNISOLONE TABLETS:

Take _____ mg prednisolone tablets for _____ days OR

_____

IF I NEED TO TAKE 6 RELIEVER PUFFS FOR 2 DAYS IN A ROW (MAXIMUM DAILY DOSE OF 8 PUFFS), I SHOULD CONTACT MY DOCTOR

ASTHMA EMERGENCY

SIGNS OF AN ASTHMA EMERGENCY:

- When my symptoms are getting worse quickly
- When it is very hard to breathe or speak
- When I get little or no relief from my FOSTAIR® reliever inhaler

IF I HAVE ANY OF THE ABOVE DANGER SIGNS, I SHOULD DIAL 000 FOR AN AMBULANCE AND SAY THAT I AM HAVING A SEVERE ASTHMA ATTACK.

WHILE I AM WAITING FOR THE AMBULANCE:

- Sit up straight and stay calm
- Take my FOSTAIR® as often as needed, use a spacer if available
- If only salbutamol (e.g. Ventolin®, Asmol®) is available, take 4 puffs as often as needed until help arrives.
- **Even if my symptoms appear to settle quickly, I should see my doctor immediately.**
  - ☐ Use my adrenaline autoinjector

References - Websites

Asthma Australia - https://asthma.org.au/

GINA - https://ginasthma.org/

Lung Foundation of Australia - https://lungfoundation.com.au/

National Asthma Council Australia - https://www.nationalasthma.org.au/

NPS MedicineWise - https://www.nps.org.au/

Severe Asthma Toolkit - https://toolkit.severeasthma.org.au/

References

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Tasmanian HealthPathways

- Tasmanian HealthPathways is a web-based information portal developed by Primary Health Tasmania. It's designed to help primary care clinicians plan local patient care through primary, community and secondary healthcare systems.

- https://tasmania.communityhealthpathways.org/
- Username 'connectingcare'| password 'health'

HealthPathways
Tasmania
Genetics
Haematology
Immunology
Infectious Diseases
Intellectual Disability
Nephrology
Neurology
Oncology
Pain Management
Palliative Care
Respiratory
Asthma in Adults
Acute Asthma in Adults
Non-acute Asthma in Adults
Asthma in Pregnancy
Differentiating COPD from Asthma
Inhaled Corticosteroids (ICS)
Combination ICS / LABA Therapy
Asthma in Children
Bronchiectasis
Chronic Cough
Community Acquired Pneumonia (CAP) in Adults
COPD
Dyspnoea

Acute Asthma in Adults

COVID-19 note

Due to the current COVID-19 outbreak, avoid the use of nebulisers and high-flow oxygen via nasal prongs in primary care due to the risk of aerosolisation of viral particles.

Ensure the use of PPE for all respiratory presentations. See the National Asthma Council – COVID-19 and Your Asthma Patients.

Last updated: 17 December 2020

Practice point

Start bronchodilator treatment immediately while assessing severity.

If anaphylaxis suspected, treat accordingly.

Red Flags

Arrange urgent admission via ambulance to Emergency Department if:

- Drowsiness or exhaustion
- Collapse
- Bradycardia or hypotension
- Poor respiratory effort
- Oxygen saturation < 92%
- Peak flow < 200

Assessment

Tasmanian HealthPathways

tasmania.communityhealthpathways.org

- Online support for clinical decision making, localised to Tasmania
- Developed by GP clinical editors in collaboration with hospital and community-based clinicians
- Respiratory pathways currently under review with clinical work group meetings scheduled for:
  - 2 June (north-west)
  - 9 June (north)
  - 16 June (south)
- To participate in a clinical work group meeting in your region, or to learn more please email healthpathways@primaryhealthtas.com.au These meetings will be held via Microsoft Teams.

Access with the username *connectingcare* password *health.*

Some final words

- After this webinar ends, your browser will open a link to a Survey Monkey
- We would be very grateful if you could take two minutes to fill this in. Many thanks.
- Acknowledgement of attendance will be emailed to participants.
- For any other queries, please contact info@primaryhealthtas.com.au.

- Thanks for coming!

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